4

CLUSTERS

OVERVIEW AND CONTEXT

A decade ago, virtually any US city looking to grow jobs and incomes would have simply adopted the cluster strategies developed for its regional economy. However, with advances in economic data, improved understanding of urban and regional economic dynamics, and the success of new models for supporting employment growth in cities and their districts and corridors,[1] leading-edge practitioners have come to appreciate that strategies for urban economic growth should focus on the specific firms, assets, trends, clusters, and opportunities within cities, which are often distinct from its regional strengths. In fact, the economic strengths in most urban areas are not strengths in the rest of their regions, making it all the more important to explicate strategies at both the city and regional scales.[2] This chapter identifies those opportunities for the City of St. Louis. Also in this chapter is a discussion of strategies that are regional in nature and how the City of St. Louis can take advantage of those opportunities.

In traditional regional strategies, only so-called "traded" clusters, e.g., automotive or pharmaceuticals, that serve national and global markets are considered growth targets. Clusters that serve smaller market areas (neighborhoods or metropolitan areas) are seen as zero-sum from the perspective of the region, and they are generally ignored in regional economic development strategies. However, the development of the equitable economic growth framework for the City of St. Louis requires understanding potential opportunities to grow place-based, neighborhood-serving clusters like grocery stores, daycares, retailers and restaurants; and metropolitan-serving clusters, primarily business-to-business (B2B) supports like facilities management, warehousing, and temporary help services. (See Figure O-1 for a description of the three types of clusters.)

1 *Atlanta BeltLine.* (n.d.). Retrieved from https://beltline.org; Detroit Future City Strategic Framework. (n.d.). Detroit Future City. Retrieved from https://detroitfuturecity.com/strategic-framework/; *Economic Development Strategic Plan.* (2019). http://fortworthtexas.gov/ecodev/edplan/StrategicPlanUpdate-Aug2019.pdf; *Inclusive Economic Opportunity Districts Program.* (n.d.). Local Initiatives Support Corporation. Retrieved from https://www.lisc.org/indianapolis/what-we-do/opportunity/inclusive-economic-opportunity-districts-program/; *Newark launches multifaceted economic development strategy initiative.* (n.d.). TAPinto. Retrieved from https://www.tapinto.net/towns/newark/articles/newark-launches-multifaceted-economic-development

2 For economic clusters that reflect strengths in the core county, 57% are not shared strengths with the rest of the MSA (based on 20 MSA-core county pairs with a total n = 368 clusters that are strengths in the core counties). For clusters that reflect strengths in the rest of the MSA, 64% are not shared strengths with the core county (based on 20 MSA-core county pairs with a total n = 456 clusters that are strengths in the rest of the region). Source: UDP, 2016; Mass Economics analysis

Figure O-1. Overview of neighborhood, metropolitan-serving, and traded clusters

Cluster	Follows:	Proximity Preferences
Neighborhood	Population and income	Seeks activity – foot traffic, lights on, etc.; will co-locate even with seeming competitors (e.g., restaurant rows, malls)
Metropolitan-Serving	Affordable land, industrial space, and highway connections	Easy access to customers; will co-locate with other B2B firms when sharing or seeking similar real estate assets
Traded	Key assets (e.g., transport nodes, research hub), other firms	Thrives on density of assets and firms in own and related industry segments

ST. LOUIS HAS A MIXTURE OF JOBS THAT OFFER **OPPORTUNITIES FOR RESIDENTS**

The most important industries that have the potential to grow in the City include :

Healthcare is the biggest employment cluster in St. Louis

61% of jobs in this sector are accessible to those with less than a college degree

38,200 *jobs* — HEALTH SERVICES

Drug and medical supply retail; pharmacy technicians; medical lab technicians; nurses and nursing assistants; medical records; customer service; radiology technicians; respiratory therapists; dental technicians/hygienists; pharmacists; dentists; doctors

17,200 *jobs* — REGIONAL & LOCAL BUSINESS SERVICES (71%)

Laundry and janitorial services; machine and equipment repair; locksmiths; security guards; local trucking and delivery; exterminators; temporary agencies; accountants and accounting clerks; waste and recycling services

16,300 *jobs* — NATIONAL BUSINESS SERVICES (66%)

Consultant services (architects, logistics, computer, engineering, landscaping, human resources); telemarketers; payroll services; administrative support; computer support technicians

16,300 *jobs* — URBAN MANUFACTURING (71%)

Assembly line workers; metal workers; textile workers; machinery technicians; inspectors; production and logistics managers; engineers; industrial designers

11,900 — COMMUNITY & CIVIC ORGANIZATIONS (67%)

Child and youth services; services for persons with disabilities and the elderly; housing services; environmental and social service organizations; personal caregivers; nurses and nursing assistants; fundraisers; program managers; client services; grant writers; event planners

11,000 — EDUCATION & TRAINING (49%)

Teachers and professors; teaching assistants; administrative and human resources; college staff positions (alumni relations, foundation, student activities)

9,200 — REAL ESTATE, CONSTRUCTION & DEVELOPMENT (73%)

Laborers; electricians; carpenters; plumbers; HVAC technicians; construction trades workers; contractors; real estate agents and brokers; appraisers; property managers; building materials and home products retailers

7,000 — TRANSPORTATION, LOGISTICS & DISTRIBUTION (68%)

Wholesalers; packaging; warehousing and storage; material movers and handlers; trade agents and brokers; long-distance trucking; shipping/receiving clerks; logistics and supply chain managers

6,600 — FINANCIAL SERVICES (52%)

Bankers and bank tellers; mortgages and loans; financial analysts; stock market and investment bankers

6,300 — HOSPITALITY & TOURISM (70%)

Hotel and casino workers; customer service; museums, zoos, and amusement parks; professional sports clubs; venue and tour operators; restaurant workers; caterers; bartenders

4,200 — FOOD PROCESSING & MANUFACTURING (72%)

Food (including pet food) beverage production; assembly line workers; bakers, butchers, meat packers; machinery technicians; production and logistics managers; inspectors; engineers

3,700 — MARKETING, DESIGN & PUBLISHING (56%)

Publishing; public relations; graphic designer; advertising; interior and industrial designers; paper and digital news

2,400 — BIOSCIENCES (60%)

Biologists; chemists; life sciences technicians; statisticians and data analysts; laboratory technicians

1,700 — PERFORMING ARTS (64%)

Musicians, actors, dancers, visual artists, writers; event promoters; agents and talent managers. Does not include the likely thousands that are self-employed in the performing arts

new!

ST. LOUIS ALSO HAS A GROWING NUMBER OF JOBS IN NEW CLUSTERS.

These represent important additions to the City's economy and job opportunities for residents, such as:

3,000+ *jobs* *and growing* — GEOSPATIAL, SOFTWARE & AGRICULTURE TECH

NGA, computer programmers and technicians; lab technicians; field technicians; customer support; public relations; cyber security; software engineers; robotics; GIS analysts; geographers; geologists; graphic designers; food scientists; biochemists; engineers

THE FRAMEWORK AND STRATEGIES PRESENTED IN THIS CHAPTER ARE SHAPED BY ORGANIZATIONAL AND CONTEXTUAL FACTORS, AS WELL AS THE BROADER AIMS OF THE EQUITABLE ECONOMIC DEVELOPMENT FRAMEWORK.

In the case of St. Louis, neighborhood- and metropolitan-serving clusters are both important for contributing to growth and equity. Neighborhood clusters that serve consumer needs (B2C) are fundamental to quality of life for city residents (and visitors) and growing the population, as well as to commercial corridor revitalization efforts and supporting the long-term growth of one of the city's largest traded clusters, Hospitality and Tourism. Metropolitan-serving clusters are also foundational to an equitable growth framework: the scope and quality of local B2B offerings act as an incentive or deterrent to growing and attracting start-up firms[3] and B2B firms themselves are critical sites of inclusive opportunity. Nationally, revenue of minority-owned businesses (MBEs) and women-owned businesses (WBEs) are approximately four times higher in metropolitan-serving than in traded clusters, which tend to have fewer privately-held firms and of those, fewer tend to be minority owned.[4] An equitable economic development framework for St. Louis must work to promote optimal distribution and growth of neighborhood-serving clusters; aim to grow and retain B2B firms to provide goods and services to meet demands of city and metropolitan-area businesses; and create capital and technical assistance supports to ensure that B2B opportunities are open to a diverse set of local entrepreneurs. In addition, of course, the cluster strategy must identify opportunities to grow firms and jobs in traded clusters – the critical drivers of long-term urban and metropolitan economic growth.

This chapter lays out a framework for equitable firm and employment growth organized around clusters, i.e., "geographically proximate group[s] of interconnected companies, suppliers, service providers and associated institutions in a particular field, linked by externalities of various types."[5] A cluster approach is useful for identifying sets of industries that are related and can benefit from similar interventions and provides an analytic framework that is more wieldy by organizing ~1,000 industries into about 70 clusters.[6] The industry cluster approach is not always well-suited for analyzing some emerging opportunities, especially in technology areas like geospatial and agtech, which defy easy mapping to industries or occupations and in fact, can be associated with dramatically different activities, economic and otherwise, from place to place. For these clusters, activities and opportunities are described according to occupational and/or functional categories.

The framework and strategies presented in this chapter are shaped by organizational and contextual factors, as well as the broader aims of the equitable economic development framework. While the framework does not focus on a cluster-based growth strategy at the generalist economic development organizations (EDOs) level, those EDOs are charged with regional growth, and the city and SLDC will continue to engage and devote staff in activities that focus on regional clusters that enhance city jobs and businesses. In addition, the city and region have a strong set of organizations with a focus on a specific cluster, including agtech (e.g., Danforth Plant Science Center), biosciences (e.g., BioSTL), geospatial (e.g., the emerging GeoFutures structure), hospitality and tourism (e.g., Explore STL), and transportation, distribution, and logistics (e.g., St. Louis Regional Freightway). Given these conditions, we believe that a city-centered economic development framework organized around clusters can utilize and strengthen existing cluster initiatives. Longer term, this approach leaves room for SLDC to share its expertise, as well as data and methods underlying this framework, to support new regional efforts to organize around clusters, such as the recently-announced plan to develop a region-wide

3 Edward L. Glaeser, Entrepreneurship and the City, Working Paper 13551, National Bureau of Economic Research. Cambridge, MA: October 2007

4 Teresa M. Lynch, "Cities in the Innovation Economy," presented at Innovation and the City conference, September 27, 2016, Cambridge MA.

5 *Cluster Mapping Methodology*. (n.d.). U.S. Cluster Mapping. Retrieved from https://clustermapping.us/content/cluster-mapping-methodology

6 *Cluster Mapping Methodology*. (n.d.). U.S. Cluster Mapping. Retrieved from https://clustermapping.us/content/cluster-mapping-methodology

growth plan on so-called advanced industry clusters.

The requirement that strategies meaningfully increasing economic opportunity for a broad set of St. Louis residents and workers means that target clusters must represent opportunities for growth in the number of inclusive job opportunities; and that new investments or strategic direction by SLDC and/or its partners can drive better outcomes. The first criterion—increase in number of inclusive job opportunities—eliminates so-called "local" clusters like healthcare, for which demand is largely limited by things like population and income, as well as many of the life sciences clusters, which tend to create jobs almost exclusively for workers with at least a four-year degree. This criterion ensures that the ultimate goal of the framework—to provide a roadmap for SLDC and its partners to create a more vibrant and equitable economy in the City of St. Louis—remains the focus.

The second criterion—that the growth trajectory can be altered in a fundamental way—eliminates industries and clusters for which there are already significant organizing efforts underway and there is limited opportunity to add complementary capacity. This criterion is critical for ensuring that limited public sector and nonprofit resources are deployed in ways that will maximize their impact on St. Louis residents and workers. The cluster strategies presented here are of course, strongly shaped by the distinct economic specializations and opportunities in the City of St. Louis. As discussed in the next section, the city's economic opportunities are generally distinct from those in the rest of the metropolitan area, but there are important exceptions – e.g., biosciences, healthcare, and financial services – and opportunities for the city to better participate in regional specializations – e.g., transportation, distribution, and logistics. As such, SLDC should have a tailored role in each proposed cluster initiative—as lead, partner, or support organization—depending on existing capacity at other EDOs as well as the roles played by City of St. Louis firms, assets, and organizations in the larger regional cluster.

The selection of cluster targets for the city's equitable economic development framework was also shaped by existing initiatives and plans. In a world of constrained resources, such as the one in which urban economic development is effectuated, a new strategic framework does not need to replace existing cluster capacity, but rather strategically support it. For example,

- **Bioscience**: The bioscience cluster in the city and across the region is led by one of the country's most celebrated cluster support organizations (e.g., BioSTL), with operations in the Cortex district, which serves as a global model for innovation districts, as well as a prime example of transit-oriented development (TOD). As significant new physical developments are added in Cortex, Cortex itself is undergoing a strategic planning process; we assume that the recommendations from that process will govern the district and its clusters.
- **Downtown District and the Greenway:** Similarly, we reference Downtown and proposed Greenway alignments but rely on these ongoing planning processes to drive most of the strategies.
- **EDOs**: The city is also well represented by regional EDOs in functional areas like the regional St. Louis Economic Development Partnership (SLEDP) and AllianceSTL, as well as efforts geared toward international attraction (GlobalSTL).

These efforts can be strengthened by the strategies outlined in this framework, but certainly the capacities do not need to be recreated for St. Louis City to prosper. The fact that a cluster is not profiled does not necessarily mean that it is not important but signifies that it already has strong cluster leadership and programming. Also, as was mentioned previously, there is significant activity being undertaken by SLDC and other entities, including: Community Development Administration, Planning & Urban Design Agency, Affordable Housing Trust Fund (AHTF), Land Reutilization Authority (LRA), the Port Authority, Mississippi River Cities and Towns Initiative (MRCTI), and others at the city that will continue, grow, and have activities/staff that will be integrated into this framework.

Because this framework is focused on outcomes—economic growth, social and racial inclusion, fiscal stability—the initiatives are designed to be opportunistic and goal-oriented. Some, like development of a software tech cluster, are multi-year initiatives that require building out new cluster capacity; others, like the TDL strategy, are designed to better leverage existing capacities and assets (e.g., land) and strong community leadership (e.g., St. Louis Regional Freightway) to accelerate short- and long-term inclusive job creation in the city. For some initiatives, implementation will likely require creation of permanent new organizational capacities at SLDC; for others, it is recommended that SLDC design and prototype capacities, then consider spinning them off as a new organization or a new program in an existing organization; others still will require SLDC to create new partnerships (strategic, financial, etc.) with existing external organizations.

The following cluster strategies are shown in three sections. The first section covers clusters for which SLDC should play a **leading role** and includes the city-building, transportation, distribution, and logistics (TDL), manufacturing, software tech, and business-to-business (B2B) clusters. The second section covers clusters for which SLDC should serve as **partner** and includes the geospatial and hospitality and tourism (H+T) clusters. The third section covers regional clusters, for which SLDC should play a **supporting role**. Strategies for each cluster are high-level and are supported by action items. Action items identify who should lead the execution of the action ("leader"); entities that should be convened or involved ("potential partners"); when the action should be initiated ("start time"), categorized as Year 1, Year 2, or Years 3-5; how long the action is expected to take ("duration"); the level of exertion required to implement the action ("effort to implement"); sources for required monetary resources ("potential funding"); the underlying goal(s) associated with the action ("goal/s"); and how to evaluate progress on the action ("tracking progress").

LEAD CLUSTERS

ALL FIVE LEAD CLUSTERS REPRESENT IMPORTANT OPPORTUNITIES FOR INCLUSIVE GROWTH AND ENTREPRENEURSHIP, AND THESE CLUSTERS REQUIRE THE COORDINATION, ORGANIZATION, AND CAPABILITIES THAT ARE INHERENT TO SLDC.

The development of city-building, TDL, manufacturing, software tech, and B2B will require SLDC to take a lead role in cluster development. All five clusters represent important opportunities for inclusive growth and entrepreneurship, and these clusters require the coordination, organization, and capabilities that are inherent to SLDC.

The coordination and organization required by the city-building cluster across activities and entities makes SLDC a logical leader. A central theme of the city-building cluster is that revitalizing the city's physical assets is fundamental to improving quality of life and asset-building opportunities for residents, and creating foundational supports for inclusive economic outcomes. SLDC's capabilities, tools, and programs make it especially well-suited to the city-building agenda. In light of the fact that city-building also requires city planning and visioning, the Planning and Urban Design Agency and other city leadership must also be deeply engaged in supporting the cluster.

In order for the TDL cluster to be successful, SLDC leadership is necessary. SLDC should partner with existing organizations (e.g., the Regional Freightway) and develop a specific focus on the cluster's growth in the city, amplifying efforts to undertake land assembly work in the city around the riverfront. TDL also provides an opportunity to marry innovation and industry, especially across underutilized vacant land on the north side of the side.

SLDC should champion the manufacturing cluster because of its real estate capacity, as well as broader functions. Support for manufacturing should include business and workforce supports, as this is a particular opportunity to bolster on-the-job training and foster MWBE entrepreneurship (referring to all minority- and/or women-owned businesses, with or without certification).

As a cluster that cuts across both industries and occupations, the natural decentralization of software tech across industries means that SLDC leadership is paramount. Software tech creates broad-based opportunity and promises to build up an important skillset for workers in the city and region. Under SLDC leadership, the cluster can be organized; in turn, SLDC will gain the organizational capacity to support local attraction and expansion efforts among software tech firms.

Although the B2B cluster is sizeable in the City of St. Louis, it is underperforming. In general, B2B firms experience unique challenges, and in order for the cluster to thrive, both demand- (revenue opportunities) and supply-side issues (e.g., working capital availability) must be addressed. Real estate that meets the specific needs of B2B firms can help with both demand- and supply-side challenges, by providing firms a location closer to customers and offering opportunities for shared services. In light of SLDC's expertise on real estate development and familiarity with business supports and small business lending, it is a natural leader for this cluster and is positioned to provide long-term, stable leadership on cluster initiatives.


ShipWorks

City-Building

Cluster Vision

Despite being a nontraditional cluster, city-building is arguably one of the most foundational clusters, centered on the city's physical assets and engaging local talent – especially the capacity of local MWBEs – to restore and revitalize said assets. City-building activities range in scale from site-level redevelopment and construction all the way up to city planning and visioning on a grand scale, incorporating initiatives like home repair funds and blight remediation. Today, the City of St. Louis boasts several major national development firms, and the expertise of these firms should be leveraged while also cultivating small-scale developers. The city-building vision embodies inclusive value creation, and a successful city-building cluster will provide opportunities for minority-owned firms, residents of color, and historically disadvantaged or left-behind neighborhoods to build equity and opportunity across the City of St. Louis.

Cluster Overview

A number of the City of St. Louis' greatest challenges and opportunities—vacant and blighted land, residential construction that almost uniformly requires subsidy, struggling commercial corridors that lower quality of life in neighborhoods—are linked to physical development and some of the city's most significant assets are physical ones – including land, infrastructure, and building stock. If productive, these assets can help ensure a high quality of life for residents and businesses, serve as amenities for current and future generations, generate significant revenue for the city, and create opportunities for jobs and entrepreneurship. The improvement, remediation, and strengthening of the physical and built environment to meet city development goals together comprise what we term a "city-building" cluster of activities, firms, and workers.

For the purposes of this chapter, the city-building cluster includes the following activities: city planning and visioning; property repairs and renovations; blight, vacancy, and land remediation; real estate development; and construction activity. Different indicators on city-building provide somewhat different pictures but in general point to a city-building cluster that could be more of a growth engine for the city's physical and economic development.

City planning and visioning

While construction and development efforts are implied in city-building activities, city-building, at its core, requires planning. Although city planning is a municipal function, it is also an act of strategic visioning, coordination, and action around desired end goals. City planning will govern the execution of these city-building activities. City planning efforts may involve coordinating data-driven efforts and gathering information on potential indicators of blight (e.g., prolonged vacancy, absentee owners, water disconnections); establishing funding streams; improving code enforcement; streamlining development processes, like permitting and rezoning, and fast-tracking projects that are beneficial to the city and its communities; enforcing the city laws around rampant illegal dumping; and, more broadly, guiding development activity and serving as a steward of the city's land assets. For example, commercial corridors anchor their surrounding neighborhoods and have the potential to elevate local quality of life; city planning serves an integral role in this.

City planning gestures support for new development,[7] which is a critical first step for the city-building cluster. This type of visioning is important at both a neighborhood and city scale; organizations like the **Creative Reaction Lab**, which provides opportunities for young people of color to participate in and drive community visioning, support these efforts.[8] The new **½ Cent Economic Development Sales Tax** supports several end goals related to planning, such as the North-South MetroLink expansion and neighborhood revitalization (including planning grants for community-led planning efforts) through the City of St. Louis' Community Development Administration (CDA).[9]

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7 Project interviews and roundtables

8 *Creative Reaction Lab*. (n.d.). Creative Reaction Lab. Retrieved from http://www.creativereactionlab.com

9 *Economic Development Sales Tax Summary*. (n.d.). https://www.stlouis-mo.gov/government/departments/mayor/

Repairs and renovations

The city's long history means that it has an aging building stock – and, as a result, ample opportunities for restoration and a sizeable need for home repairs. CDA offers the **Healthy Home Repair Program**, which provides "home repair assistance for low to moderate income households."[10] Despite the existence of home repair programs, funds, and other resources, they are often insufficient and unable to fully address necessary home repairs in communities that are underserved. In addition, income caps may prevent some low- and moderate-income homeowners earning just over the income threshold from accessing these funding sources, despite their potential need for such resources. Homes for sale in weak market areas may also have an "appraisal gap" if a property requires additional repairs beyond what it is appraised for and an interested buyer can only get a loan up to the appraisal value. The recent **Gateway Neighborhood Mortgage**, or "Greenlining Fund," attempts to address this on an entry-level scale in targeted neighborhoods.[11] For commercial properties, SLDC offers façade improvement grants through the **Neighborhood Commercial District Improvement Program**.[12]

Blight and vacancy

In some cases, a structure may be too dilapidated for repair or restoration. A consequence of the city's older building stock coupled with net out-migration is blight, which refers to properties (both with and without structures) in poor condition. There are several approaches to blight remediation, including the demolition of the blighted structure, strategic code enforcement, databases to manage blighted properties, land banks to hold blighted properties and resolve ownership challenges, and property conversion to functional green space.[13]

In the City of St. Louis, blight remediation approaches will vary – and have historically varied – across the city. By some accounts, the city's blight remediation efforts have been largely divided by geography, reinvesting in the central corridor and reserving demolitions for the north side.[14]

Importantly, the disparities in land condition on the north and south sides of the city – a consequence of racism, redlining, restrictive covenants, and other discriminatory behavior embedded in both practice and policy across all levels of government – suggest that their land absorption rates will differ.[15] Blight remediation approaches should be tailored to these conditions and markets. In addition, resources need to be targeted in a way that reflects the differences in land absorption rates in different parts of the city while also working to achieve community-desired outcomes through new (and just) approaches. Blight remediation comes with a potential upside and can help support larger efforts to return properties to the tax rolls, increasing revenue for the city. It also stabilizes neighborhoods by restoring property values in surrounding areas.[16]

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documents/upload/Economic-Development-Sales-Tax-Summary.pdf

10 Healthy Home Repair Program. (n.d.). Retrieved from City of St. Louis website: https://www.stlouis-mo.gov/government/departments/community-development/home-repair.cfm

11 Joint Collaboration Launches "Gateway Neighborhood Mortgage." (n.d.). Retrieved from City of St. Louis website: https://www.stlouis-mo.gov/government/departments/sldc/news/joint-collaboration-launches-gateway-neighborhood-mortgage.cfm

12 SLDC Launches New and Improved Façade Grant Program. (2018, July 11). City of St. Louis. https://www.stlouis-mo.gov/government/departments/sldc/news/sldc-launches-new-and-improved-facade-grant-program.cfm

13 Schilling, J., and Pinzón, J. (2016). The Basics of Blight: Recent Research on Its Drivers, Impacts, and Interventions. VPRN Research & Policy Brief, (2), 30.

14 Allen, M. R. (2019, August 19). *Downtown St. Louis Is Rising; Black St. Louis Is Being Razed*. CityLab. https://www.citylab.com/perspective/2019/08/square-expansion-st-louis-demolition-blight-vacant-dorsey/596299/

15 Land absorption rates refers to the rate at which vacant land is developed and occupied.

16 PD&R Edge. (n.d.). Mitigating Neighborhood Blight. Retrieved from U.S. Department of Housing and Urban Development's Office of Policy Development and Research website: https://www.huduser.gov/portal/pdredge/pdr-edge-featd-article-012218.html

Blight often results from long-term vacancy or abandonment. Estimates indicate that over 28.3K parcels, both with and without buildings, across the city are vacant.[17] In 2019, the Interdisciplinary Environmental Clinic at Washington University published a report on Environmental Racism in the City of St. Louis. The report enumerates some of the challenges facing the city due to high vacancy rates (e.g., illegal dumping, worsened air quality resulting from mold growth, etc.), in addition to showing that residents of color are subject to notably worse health and environmental outcomes than white residents.[18]

17 Note: This figure slightly exceeds the City's approximation of 20,000-26,000 vacant parcels citywide. Source: Interface Studio (2019), Mass Economics (2017), City of St. Louis

18 Interdisciplinary Environmental Clinic at Washington University School of Law. (2019). *Environmental Racism in St. Louis*. Retrieved from https://assets.documentcloud.org/documents/6367937/2097-STL-EnvirRacism-Report-04-Web.pdf

There are numerous initiatives underway related to the city's vacancy. In addition to the **Mayor's Vacancy Plan** (2018)[19] and other recent studies on vacancy,[20] the **Vacancy Collaborative** has made significant strides to increase the understanding of the city's vacancy problems through the Vacancy Portal data platform. The Vacancy Collaborative consists of civic, public, private, and neighborhood leaders that convene around six working groups.[21] **Legal Services of Eastern Missouri** has also sought to address vacancy in the city through its Neighborhood Vacancy Initiative, which assists residents and communities with property titles, litigation, and other vacancy prevention tools.[22] The state's **Abandoned Housing Act** enables neighborhood organizations to gain rights to long-standing vacancies and restore them to productive use.[23] The **Land Reutilization Authority (LRA)** has several programs for vacant properties: the Dollar House Pilot Program for vacant houses (offers single-family homes for $1), and the Garden Lease and Mow to Own Programs for vacant lots (the former offers LRA-owned lots for lease five years for $5 total, and the latter offers LRA-owned lots for sale through "sweat equity" lot maintenance).[24] The recently-passed **Proposition NS** ("Neighborhood Stabilization") dedicates funding from a small property tax increase to stabilize and maintain vacant structures to protect them from further deterioration.[25] The **Green City Coalition** works with neighborhoods to convert vacant and abandoned properties to new community green spaces that both absorb stormwater and serve as neighborhood amenities.[26] The Coalition has also played a large role in ongoing community land trust efforts (see Ch. 3: Opportunity to Thrive, Strategy 2).

19 Krewson, L. (2018). A Plan to Reduce Vacant Lots and Buildings. Retrieved from City of St. Louis website: https://www.stlouis-mo.gov/government/departments/mayor/initiatives/vacancy.cfm

20 St. Louis Land Bank Assessment. (2017). U.S. Environmental Protection Agency. https://www.stlouis-mo.gov/government/departments/sldc/documents/upload/St-Louis-Land-Bank-Assessment-Final-Report-February-2017-Document.pdf; Graziani, K., & Alexander, F. (2016). Developing a Shared Vision and Strategies to Address Vacancy and Abandonment in the City of St. Louis. Center for Community Progress. https://www.communityprogress.net/filebin/20160707_STL_Report_Draft_FINAL_STL_REVIEW.pdf

21 Working groups include: Reinvestment and Reuse; Vacancy and Prevention; Anti-Displacement; Marketing and Engagement; Stabilization, Maintenance, and Demolition; and Data Analysis. See: *General Information.* (n.d.). STL Vacancy Collaborative. https://www.stlvacancy.com/general-info.html; Working Groups. (n.d.). STL Vacancy Collaborative. https://www.stlvacancy.com/working-groups.html

22 Neighborhood Vacancy Initiative. (2018, May 3). Legal Services of Eastern Missouri. https://lsem.org/neighborhood-vacancy-initiative/

23 Malkus, D. (2018). *A Guide to Understanding and Addressing Vacant Property in the City of St. Louis. SLU Law, Rise, Tower Grove Neighborhoods Community Development Corporation.* https://www.greencitycoalition.org/uploads/8/7/1/3/87139164/vacantlandstrategyguid_draftfinal_singlesheets_.pdf

24 Dollar House Pilot Program. (n.d.). Retrieved from City of St. Louis website: https://www.stlouis-mo.gov/government/departments/sldc/real-estate/dollar-house-program.cfm; Garden Lease Program. (n.d.). Retrieved from City of St. Louis website: https://www.stlouis-mo.gov/government/departments/sldc/real-estate/garden-lease.cfm; Mow To Own Program. (n.d.). Retrieved from City of St. Louis website: https://www.stlouis-mo.gov/government/departments/sldc/real-estate/mow-to-own-program.cfm.

25 O'Dea, J. (2020, January 8). All those crumbling, vacant buildings in St. Louis? Now there's somebody who's going to fix them. *St. Louis Post-Dispatch*. https://www.stltoday.com/business/local/all-those-crumbling-vacant-buildings-in-st-louis-now-there/article_1a079541-fb5a-57ea-9f3c-451154775010.html

26 Vollman, A. (2019, April 18). Green City Coalition is transforming vacant St. Louis city lots into park space. *St. Louis Magazine*. https://www.stlmag.com/api/content/bb62276e-5c7d-11e9-bea4-12f1225286c6/

Real estate development

Anecdotal measures, such as the number of cranes in the skyline, suggest that the city's current development trails other cities, such as Chicago.[27] But intense pockets of construction activity exist across the city, including nodes around Cortex, Ballpark Village, and Union Station. This is further demonstrated by the office market in the city and region; although smaller in terms of total square footage, the region's office market is developing space at the same rate as Atlanta and Pittsburgh (see Figure CB-1).

In 2018, the city issued 5.3K total permits across all project types, of which the plurality (2.4K) were for residential projects – both new construction and rehab. The neighborhood with the highest share of total permits issued was the Central West End (9% of all permits), followed by Downtown (6%) and Tower Grove South (5%). The total value of all permits in 2018 was $1.2 billion, much higher than the 2010 total ($821.5 million in constant 2018 dollars).[28]

Figure CB-1. Peer regions and total office market statistics

Sub-total	Under Development as % of Total Inventory, Region	Under Development as % of Total Inventory, City
Nashville	8.9%	16.6%
Chicago	2.8%	4.7%
St. Louis	2.5%	3.8%
Atlanta	2.5%	4.6%
Pittsburgh	2.5%	3.3%
Phoenix	2.3%	1.6%
Dallas	2.1%	1.5%
Minneapolis-St. Paul	2.0%	3.7%
Boston	2.0%	0.8%
Miami	1.6%	0.0%
Columbus	1.5%	2.6%
Philadelphia	1.0%	0.3%

Source: JLL Office Insights, 2019 Q1

The city has seen important adaptive reuse projects in recent years, including the Armory, Bowood Farms, the City Foundry, and Woodward Lofts.[29,30] The economics of adaptive reuse don't always support these projects, which in some cases are driven more by a developer preferences than the anticipated returns.[31] Depending on the circumstances, including the project's scale and end use, adaptive reuse projects can leverage federal and/or state historic preservation incentives or tax credits.[32]

Although Missouri has been praised for its extensive historic tax credit program – the biggest in the nation for "number of projects and amount of money invested in projects that utilized the credits" – the dollar amount of credits has been reduced in recent years, and the program has been criticized for its drawn-out design review period.[33]

27 Nicklaus, D. (2019, December 2). St. Louis lacks a growth mentality, construction executives complain. *St. Louis Post-Dispatch*. Retrieved from https://www.stltoday.com/business/columns/david-nicklaus/st-louis-lacks-a-growth-mentality-construction-executives-complain/article_e0dbcb85-d7a6-5baa-a1cf-8b3e9572f82a.html

28 City of St. Louis Building Permits by Neighborhood

29 Eleven Most Enhanced Places, 2007. (n.d.). Retrieved from Landmarks Association of St. Louis, Inc. website: https://www.landmarks-stl.org/enhanced_and_endangered/2007_most_enhanced/

30 Part-Four: A Revival Built on Adaptive Reuse. (2019, October 3). Retrieved from Cushman and Wakefield St. Louis website: http://cushwakestlouis.com/part-four-a-revival-built-on-adaptive-reuse/

31 Previous Mass Economics projects and analytics

32 Historic Preservation Tax Credit Programs. (n.d.). Retrieved from City of St. Louis website: https://www.stlouis-mo.gov/government/departments/planning/cultural-resources/national-register-historic-places/Historic-Preservation-Tax-Credit-Programs.cfm

33 Barker, J. (2019, January 19). Historic tax credit bottleneck stalling redevelopment projects, delaying reimbursement. St. Louis Post-Dispatch. https://www.stltoday.com/business/local/historic-tax-credit-bottleneck-stalling-redevelopment-projects-delaying-reimbursement/article_5a1ac2a4-84f1-5afc-9a80-b1d1de171819.html

"Construction and home repair [jobs like] skilled welders, installers, roofers ... as long as people have a home, those jobs will be in demand. We need some trained youth workers. [We] would like to see [a] way for people to do development work."

Construction industry

City-building activities support businesses and jobs in construction. Although several of the largest construction firms in the country are located in the St. Louis region, the construction sector – as measured by QCEW industry data – is currently weak in the city. In 2018, the construction sector employed 6.7K people in the City of St. Louis and had a location quotient (LQ) of 0.6, indicating that the industry has 40% fewer jobs than would be expected for an economic area of its size.[34] Although the construction sector is relatively weak, there are several efforts underway that aim to foster greater coordination in the industry, provide workforce development for construction industries, and build localized developer capacity across the city.

34 Source: QCEW-UDP; Mass Economics analysis

"Yeah, I Built That" is a construction career pathway initiative developed by the **St. Louis Construction Forum**;[35] **Employment Connection** offers a construction-oriented apprenticeship program targeted to residents of two neighborhoods on the north side of the city;[36] **Dream Builders 4 Equity** is a youth mentorship program focused on rebuilding and restoring properties;[37] **MOKAN (St. Louis Construction Contractors Assistance Center)** offers a variety of training and development programs, as well as pre-apprenticeship programs;[38] and **Building Union Diversity (BUD)** offers a no-cost pre-apprenticeship program for construction industries.[39] Though focused more broadly on real estate, the Real Estate Diversity Initiative (REDI) is a professional development course in real estate sponsored by the **Urban Land Institute (ULI) St. Louis**.[40]

35 Who We Are. (n.d.). Retrieved from Yeah I Built That website: https://www.yeahibuiltthat.org/who-we-are/

36 Employment Connection working to increase the pipeline of minority construction workers. (2020, January 28). *St. Louis American*. http://www.stlamerican.com/business/business_news/employment-connection-working-to-increase-the-pipeline-of-minority-construction/article_2821f4b4-41ee-11ea-84e0-3fa28996fb2e.html

37 Dream Builders 4 Equity – Building Social Equity Through Financial Equity. (n.d.). Retrieved from https://dreambuilders4equity.org/

38 MOKAN St. Louis Construction Contractors and Assistance Center. http://www.mokanccac.org/

39 About BUD. (n.d.). BUD Program: Building Union Diversity. https://budprogram.com/about-bud/

40 Real Estate Diversity Initiative (REDI). (n.d.). Retrieved from ULI St. Louis website: https://stlouis.uli.org/events/real-estate-diversity-initiative-redi/

Cluster Growth Opportunities

The promise of the city-building cluster lies in inclusive equity and value creation for residents, entrepreneurs, firms, and communities. City-building is predicated on the notion that the city has numerous latent assets whose value simply needs to be restored or strategically uncovered or recovered. Although the execution of city-building activities can be undertaken by a range of local and global firms, city-building presents a special opportunity for local, St. Louis-based firms – especially MWBE firms – that have the knowledge, networks, and dexterity to respond to efforts as they arise. In addition to smaller local firms, the city is also home to national leaders and several large-scale construction firms, whose efforts can be directed toward local initiatives that support the city-building cluster.

As a cluster, city-building has an intentionally broad definition and encompasses a range of industries, such as Construction; Architecture, Planning, and Engineering; and Real Estate Management and Services. Despite low growth and activity levels among construction firms in the City of St. Louis, its accessibility and high wages make it a promising opportunity; 86% of Construction jobs require less than a bachelor's degree, compared to 65% in the city overall. Although less accessible and declining, the Architecture, Planning, and Engineering sub-cluster is a strength in the city and offers even higher average wages – almost $30K higher than the citywide average. Finally, Real Estate Management and Services is an accessible sub-cluster, although it is declining and offers lower wages. (See Figure CB-2.)

The following strategies illustrate how to organize and establish the city-building cluster, strengthening its overall coordination as well as developing capabilities in city-building activities. Under SLDC's leadership, city-building activities can be centrally organized alongside the development of supportive policies. This coordination can support new specializations, e.g., workforce development, large-scale visioning and planning efforts, and development across the city.

Figure CB-2. Overview of city-building opportunity

Measure	Construction Sector	Architecture, Planning, and Engineering	Real Estate Management and Services	Total City Economy
Jobs, 2018 (K)	6.7	2.3	1.8	200.1
Location Quotient (LQ)	0.6	1.1	e	N/A
Projected Additional Jobs, 2028	690	120	110	11,900
Jobs Requiring Less than a Bachelor's Degree (%)	86%	42%	71%	65%
Average Wage ($K)	$72.1	$89.7K	$46.5K	$61.2
Geography	Citywide	Citywide	Citywide	Citywide
Examples of Types of Jobs	Construction workers, general contractors, specialty contractors, etc.	Architects, planners, engineers, surveying and inspectors	Lessors of RE, property managers, RE agents, brokers and other RE transaction supports	N/A

Source:QCEW-UDP; Mass Economics analysis
Note: These estimates are based on industry data and exclude public sector employment

Strategies and Action Items

Strategy 1	Equip SLDC to proactively cultivate the city-building cluster around organized geographies

City-building is a unique cluster in that it includes both public and private sector activities, across a range of industries. There are numerous city-building activities already taking place in the city and region, but the nature of the cluster means that these activities are largely fragmented. In order to roll out a coordinated city-building approach to support the restoration of the city's physical assets, an important first step is to ensure that the cluster has organized leadership and coordination across separate, currently disconnected entities. This involves organization and coordination, process improvement, and creating new and leveraging and improving existing tools. These actions aim to increase capacity across the city, especially at the neighborhood level.

"We need to do things en masse [to affect appraisals and make projects financially feasible] and that means the city has to be in the planning process."

Action Item #: CB-1.1	**Organize teams within SLDC and convene partners to coordinate city-building activities, such as code enforcement, process mapping; the use, sale, and holding of land among public bodies; and potential city-building demonstration projects**
Leader	SLDC
Potential Partners	AHTF, Buildings Dept., Community Development Administration, Construction Forum, LRA, Metro, Metropolitan Sewer District, MODOT, Planning & Urban Design Agency, SLACO, SLATE, St. Louis Public Schools, Vacancy Collaborative, community organizations, developers
Start Time	Year 1
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	SLDC, city, state and philanthropic sources
Goal/s	Establish knowledge base around city-building and real estate development deal making, enable productive convenings of actors that support city-building activities, coordinate SLDC efforts with construction industry discourse on new development, effectively combine the management of public land assets into one process
Tracking Progress	Staff dedicated to identifying sites, performing market analysis, and pitching to potential investors; representation from diverse actors; establish working group with partner public agencies; categorize public properties based on their current and projected use by public entity who owns them

Action Item #: CB-1.2	**Improve the communication channels and increase collaboration opportunities between the public and city departments**
Leader	SLDC
Potential Partners	Community Development Administration, Community Builders Network, Forward Through Ferguson, Planning & Urban Design Agency, SLACO, Vacancy Collaborative, neighborhood and economic development partners, public advocacy groups
Start Time	Year 1
Duration	Ongoing
Effort to Implement	High
Potential Funding	Internal
Goal/s	Increase government transparency; expand engagement around development
Tracking Progress	Number of people engaged; web traffic

Action Item #: CB-1.3	**Create a high-level process map of the existing code enforcement system followed by a more detailed process map of mechanisms and processes, identifying "pain points" and areas of improvement**
Leader	SLDC
Potential Partners	Buildings Dept., Vacancy Collaborative
Start Time	Year 1
Duration	6 months
Effort to Implement	Medium
Potential Funding	Internal
Goal/s	Simply the code enforcement process for property owners; more easily identify non-compliant property owners, including absentee landlords
Tracking Progress	Completed process maps

Action Item #: CB-1.4	**Establish specialty incentive agencies, as permitted by state law: Residential Renovation Loan Commission, which can utilize tax-foreclosed properties for affordable housing; and the Urban Agriculture Zone, which can support agriculture activities on vacant lots**
Leader	SLDC
Potential Partners	Legal Services of Eastern Missouri, Vacancy Collaborative
Start Time	Year 2
Duration	12-24 months
Effort to Implement	High
Potential Funding	TBD
Goal/s	Reuse (and reinvest in) vacant and/or foreclosed properties; support neighborhood stabilization
Tracking Progress	Established two new agencies

Action Item #: CB-1.5	**Ensure that key state incentives (e.g., Historic Tax Credits) are available for developers in the city; track their usage locally**
Leader	SLDC
Potential Partners	City, local developers
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	Internal
Goal/s	Ensure the accessibility and availability of state-offered incentives
Tracking Progress	Tax credit amount awarded to the city

Action Item #: CB-1.6	Undertake a cost-benefit analysis on the use of single-family abatements
Leader	SLDC
Potential Partners	University partner (e.g., SLU's Urban Planning and Development department, UMSL's Community Innovation and Action Center, or others)
Start Time	Year 2
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	Internal
Goal/s	Understand the value of single-family abatements and their potential to be used to support housing development in target areas; propose potential modifications to current incentive reform approaches that support infill and rehab opportunities
Tracking Progress	Completed analysis

Action Item #: CB-1.7	Establish a shared, publicly accessible data center that compiles population, income and relevant market data on housing, retail, foreclosures, vacancy, land assets, and other neighborhood amenities
Leader	Planning & Urban Design Agency, Regional Data Alliance, Rise Community Development, SLDC
Potential Partners	Center for Civic Research and Innovation, City Chief Technology Officer, Commercial District Coalition, Vacancy Collaborative, neighborhood CDCs, realtors
Start Time	Year 1
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	SLDC
Goal/s	Build on the foundation provided by the Regional Data Alliance; provide data services to neighborhood groups; conduct outreach to potential developers and investors; develop a go-to public resource for developers, potential investors, and internal staff to utilize when making investment decisions
Tracking Progress	User-friendly web interface design, process established for regularly updating and maintaining data, data gathering and imputation process from data partners

Action Item #: CB-1.8	**Establish a publicly accessible, mobile-friendly database of LRA and other publicly held properties to ensure equitable access to real estate information and disseminate the information to community groups and developers [note: overlaps with Vacancy Collaborative goal*]**
Leader	SLDC
Potential Partners	City, LRA, SLACO, Vacancy Collaborative, community organizations, developers (also could engage national networks, e.g., National Land Bank Network)
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	SLDC, potential partners
Goal/s	Establish a process for transparent, long-term information sharing around vacancy goals; consider previewing the data to neighborhood residents and groups, allowing them the right of first refusal for available properties
Tracking Progress	Number of parcels tracked in database; accessibility of database compared to existing property lists; number of people (or organizations) reached through sharing channels
Action Item #: CB-1.9	**Support the development of a comprehensive database of home repair funds and requirements [note: overlaps with Vacancy Collaborative goal**]**
Leader	Community Development Administration
Potential Partners	Carondelet Community Betterment Federation, Healthy Homes Coalition, Legal Services of Eastern Missouri, SLACO, St. Louis Senior Fund, United Way, Urban League, Vacancy Collaborative, home repair providers, neighborhood associations, SLDC
Start Time	Year 1
Duration	6 months
Effort to Implement	Low
Potential Funding	SLDC
Goal/s	Create a comprehensive resource for internal (SLDC) and external (public) use; summarize in a clear, easy-to-use, and up-to-date matrix showing sources of funding (breaking out conventional and government or nonprofit lenders) and requirements for each
Tracking Progress	Presence of a database

Note: *See: "Increase opportunities and capacity for small-scale redevelopment, reuse, and reinvestment" and "Manage vacant properties comprehensively (i.e., strategic stabilization, maintenance, deconstruction, demolition, and sale) and increase transparency." St. Louis Vacancy Collaborative: 2019-2021 Work Plan. (n.d.). https://www.stlvacancy.com/ uploads/1/2/7/4/127463804/work_plan.pdf
Note: **See: "Understand tools to prevent vacancy; facilitate development of additional tools." St. Louis Vacancy Collaborative: 2019-2021 Work Plan. (n.d.). https://www.stlvacancy. com/uploads/1/2/7/4/127463804/work_plan.pdf

Action Item #: CB-1.10	Broaden potential funding sources (e.g., development fees, Payments in Lieu of Taxes) that can used for home repairs and increase overall funding for home repair funds
Leader	Community Development Administration
Potential Partners	Carondelet Community Betterment Federation, Healthy Homes Coalition, Invest STL, Legal Services of Eastern Missouri, SLACO, St. Louis Senior Fund, United Way, Urban League, Vacancy Collaborative, home repair providers, neighborhood associations, SLDC
Start Time	Year 2
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	Local philanthropy
Goal/s	Support neighborhood stabilization efforts; enable residents to conduct necessary repairs; promote anti-displacement; utilize home repair funds to support other objectives (e.g., energy efficiency); evaluate the prospects for restoring retired programs, such as the GreenHELP program*
Tracking Progress	Number of funding sources and dollar amount contribution to home repair funds

*The GreenHELP program provided low-interest loans for home energy efficiency improvements and was retired at the end of 2018

Action Item #: CB-1.11	Amend the state constitution to allow the roll-out of residential property tax reductions or abatements for existing resident
Leader	City, Community Development Administration, SLDC
Potential Partners	Carondelet Community Betterment Federation, Healthy Homes Coalition, Legal Services of Eastern MIssouri, SLACO, St. Louis Senior Fund, United Way, Urban League, Vacancy Collaborative, home repair providers, neighborhood associations
Start Time	Year 2
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	Local philanthropy
Goal/s	Promote anti-displacement and neighborhood stabilization; could initally target toward residents that perform home repairs using a home repair fund
Tracking Progress	Number of homeowners using home repair funds; number of delinquent property tax payments

Action Item #: CB-1.12	Develop a large-scale materials transfer station for building materials in the city and create incentives for developers to use local, salvaged building materials in new and infill construction
Leader	Green City Coalition
Potential Partners	Employment Connection, EPA Region 7, Missouri Department of Natural Resources, Regional Business Council, SLATE, Vacancy Collaborative
Start Time	Year 1
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	Fund through local or national philanthropy
Goal/s	Establish a location where materials from demolished structures in the city can be salvaged and stored for use in future redevelopment projects; create incentives for developers to utilize deconstructed building materials
Tracking Progress	Identification of proper location(s), acquisition of site, security of funding, build-out of space, awareness of station among developers

Action Item #: CB-1.13	Utilize land assembly fund for strategic land assembly and site prep purposes along primary corridors
Leader	SLDC
Potential Partners	CDFI Coalition, Community Builders Network, Invest STL, LRA, Planning & Urban Design Agency, Vacancy Collaborative, financial institutions, philanthropy and business communities
Start Time	Year 2
Duration	Ongoing
Effort to Implement	High
Potential Funding	City, philanthropy, Prop NS for building stabilization
Goal/s	Proactively target government and philanthropic resources in target, underinvested neighborhoods
Tracking Progress	Identification and acquisition of sites; preparation of RFPs and solicitation of developer proposals; execution of contracts and proceeding of construction

Action Item #: CB-1.14	Offer tailored support to CDCs, providing financing and/or wraparound services and developing programming to support neighborhood capacity
Leader	SLDC
Potential Partners	Community Builders Network, Commercial District Coalition, Invest STL, neighborhood institutions (e.g., faith-based organizations)
Start Time	Years 3-5
Duration	Ongoing
Effort to Implement	High
Potential Funding	Local philanthropy
Goal/s	Build neighborhood capacity and improve quality of life; enable neighborhoods across the city to innovate; understand potential problems (e.g., crime, absentee landlords) and craft local responses; create programs for residents to "adopt" neighborhood maintenance and responsibilities, modeled off of programs like Soak It Up in Philadelphia
Tracking Progress	Development and usage of such programming and services

PRECEDENT

SOAK IT UP ADOPTION PROGRAM
Philadelphia, PA

https://water.phila.gov/adoption/

Strategy 2 — Build new and expand existing small developer and construction firm capacity via training, financing, TA, and programming supports

One key to establishing sustainable, organic neighborhood development is the presence of a healthy and diverse ecosystem of small to mid-size developers and investors that combine passion for redeveloping neighborhoods with sufficient skill in redevelopment. Cultivating such an ecosystem of developers and advocates is essential to reigniting growth in long-struggling areas. There are already strong examples of training for developers, like ULI's REDI program and Dream Builders 4 Equity. The state's Abandoned Housing Act has also been used to support small-scale developer capacity by enabling neighborhood organizations to team up with local developers to renovate properties.[41] These programs could be enhanced by incorporating neighborhood-specific expertise around community needs and potential opportunity properties.

Given the range of entities, from developers, to community groups, to non-profits and many others, involved in the city-building ecosystem, the following actions underscore the importance of knowledge exchange. This includes best practices for certain types of site development (e.g., how to redevelop former school sites[42]), how to tap into certain streams of financing (e.g., historic tax credits), and understand how new development would affect the community and how it can be undertaken in a way that provides the most community benefit.

Action Item #: CB-2.1	**Establish dedicated financing streams (including lines of credit and pre-development funds) for city-building activities and business training for MWBE firms through existing programs, lenders, and TA providers**
Leader	SLDC
Potential Partners	Gateway CDFI, IFF, MOKAN Institute, Promise Zone staff, RedDough/Prosperity Connection, St. Louis Community Bank
Start Time	Year 1
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	Local CDFIs
Goal/s	Address the capital challenges facing MWBE firms; provide TA and simplify application processes
Tracking Progress	Number of financing streams developed; number of MWBE firms capitalized

Action Item #: CB-2.2	**Create a mentorship program between large and small MWBE developers and construction firms for training and scaling purposes**
Leader	SLDC
Potential Partners	Community Builders Network, Irresistible Community Builders, MOKAN, Promise Zone staff, SLATE, ULI-St. Louis, Vacancy Collaborative, industry and union partners
Start Time	Year 2
Duration	Ongoing
Effort to Implement	High
Potential Funding	N/A
Goal/s	Provide opportunities for existing MWBE and small development and construction firms to support cluster growth; leverage strong, local construction firms and their reputations to grow the next generation of firms; develop incentives for both sides to participate; use SLDC to arrange connections and serve as a networker and convener
Tracking Progress	Number of firms supported, firm growth (e.g., number of employees added, new revenues, etc.)

41 Project interviews and roundtables

42 See, for example, case studies on school site redevelopments in Kansas City and Atlanta: Reuse Strategy and Action Plan: Ladd School Site. (2013). Kansas City Public Schools; Mulvihill, D. (1999). Bass Lofts. ULI Development Case Studies.

Action Item #: CB-2.3	Support, expand, and coordinate existing developer training programs by incorporating neighborhood-specific curriculum and offering trainings for developers, CDCs and neighborhoods groups [note: overlaps with Vacancy Collaborative goal]*
Leader	SLACO, ULI, SLDC
Potential Partners	AHTF, Community Development Administration, CDFI Coalition, Promise Zone staff, Ranken Tech, Vacancy Collaborative, community partners (e.g., Tower Grove Neighborhoods CDC, Park Central)
Start Time	Year 2
Duration	24+ months
Effort to Implement	High
Potential Funding	External funding from philanthropy, Invest STL, SLDC, city and state
Goal/s	Build up developer expertise in historically under-developed neighborhoods, include matchmaking services to connect developers with local and/or MWBE construction firms; cover topics like financing and district designations; engage with and learn from national models (e.g., small-scale developer training offered by the Incremental Development Alliance)
Tracking Progress	Number of developments by neighborhood; number of developers receiving training

*St. Louis Vacancy Collaborative: 2019-2021 Work Plan. (n.d.). https://www.stlvacancy.com/uploads/1/2/7/4/127463804/work_plan.pdf

Action Item #: CB-2.4	Create a residential rehabber collective or incubator to align developers, resources, materials, labor, and other assistance
Leader	SLDC
Potential Partners	AHTF, Community Development Administration, CDFI Coalition, SLACO, ULI-St. Louis, Vacancy Collaborative, community partners
Start Time	Year 1
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	Local philanthropy
Goal/s	Build up and support residential rehabbers; coordinate resources; facilitate the reuse and redevelopment of vacant sites
Tracking Progress	Established collective

Strategy 3	Invest in the expansion of existing workforce development programs for the construction industry

Workforce training programs are the critical point of entry to the city-building cluster and the equitable growth opportunities it embodies. There are numerous examples of training programs tailored to different city-building activities. SLDC should support these efforts and track ongoing cluster trends to help prioritize programs by need.

Action Item #: CB-3.1	Support and expand existing workforce development efforts and career pathways in construction and related fields and foster linkages between these programs and other city-building opportunities
Leader	Employment Connection, Construction Forum, SLATE, SLDC
Potential Partners	International Institute, MOKAN, Ranken Tech, industry and union partners
Start Time	Year 2
Duration	24+ months
Effort to Implement	High
Potential Funding	City, Community Development Administration, SLATE, SLDC, State and philanthropic sources
Goal/s	Increase the visibility and success of existing workforce development programs for the construction industry; engage programs such as "Yeah, I Built That," St. Louis Carpenters Joint Apprenticeship Program, the Building Union Diversity Program, and the Pre-Apprenticeship Program
Tracking Progress	Number of people in construction workforce development programs and becoming employed in that industry
Action Item #: CB-3.2	**Use annual trends in the development and construction industries to prioritize place-based and need-based workforce development programs**
Leader	Construction Forum, Employment Connection, SLATE, SLDC
Potential Partners	International Institute, MOKAN, Ranken Tech, industry and union partners
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	City, Community Development Administration, SLATE, SLDC, State and philanthropic sources
Goal/s	Better coordinate workforce training with demand and other market considerations
Tracking Progress	Program refinement on an annual basis

* Employment Connection working to increase the pipeline of minority construction workers. (2020, January 28). St. Louis American. http://www.stlamerican.com/business/business_news/employment-connection-working-to-increase-the-pipeline-of-minority-construction/article_2821f4b4-41ee-11ea-84e0-3fa28996fb2e.html

Strategy 4 — Develop a resident arts program to place rehab-able properties into the hands of owner-occupied live/work artist studios/residences

As an expansion to the existing $1 House program, SLDC and LRA should establish a program specifically designed to redevelop a cluster of homes and/or small commercial spaces into artist live/work studio. This type of program has been successfully modeled in places like Paducah, KY, where it was shown that with the proper branding and advertising, artists can be drawn from all parts of the globe for the prospect of having their own residence and studio space at the cost of the rehab of the property. When clustered into a neighborhood community, this type of program can enhance the character of the place that will transform the neighborhood into a vibrant attraction for locals and tourists alike.

Action Item #: CB-4.1	In targeted areas, identify undervalued and city-owned residential and/or small commercial properties that can be acquired and repurposed for live/work studios
Leader	SLDC
Potential Partners	Invest STL, LRA, Regional Arts Commission, SLACO, Vacancy Collaborative, community organizations, developers
Start Time	Year 1
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	SLDC
Goal/s	Identify properties in the LRA database that are suitable for residential arts program; coordinate with neighborhood groups to establish community plans for implementation
Tracking Progress	Identification and acquisition of targeted clusters of residential and small commercial/mixed-use properties in key corridors for residential arts program

Action Item #: CB-4.2	Develop an RFP process for getting properties into the hands of artists that have documented financing and plans for rehabbing and occupying buildings
Leader	SLDC
Potential Partners	Invest STL, LRA, Regional Arts Commission, SLACO, Vacancy Collaborative, community organizations, developers
Start Time	Year 2
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	SLDC
Goal/s	Transform underutilized properties into assets for promoting artisan-based entrepreneurship and neighborhood revitalization
Tracking Progress	Number of sales by neighborhood; number of properties returned to tax rolls

Strategy 5 Develop a retail incubator with corresponding logistics hub, with a potential focus on a resilient food production and distribution cluster

In concert with the residential development side of city-building, it's also important to focus on the adjoining commercial corridors that are a huge city-building opportunity, as they can strengthen the quality of life of surrounding neighborhoods (see Ch. 5: Places). As part of commercial corridor development, a retail pop-up incubator (like the one that exists at Lake St. Louis) could be piloted in a storefront in a high-traffic/high-spend neighborhood to support entrepreneurial opportunities in a range of fields, such as restaurants and grocers, light manufacturing, artisan production, and fashion. Resilient food production and distribution, as proposed for Downtown St. Louis in the Design Downtown STL plan, may be an emerging opportunity for the retail incubator. The incubator could be paired with a logistics hub, helping to meet the shipping and supply chain needs of the retailers and relieving freight-related pressures in the city.[43]

Action Item #: CB-5.1	Engage retail experts to determine feasible location(s) for nodes and real estate
Leader	SLDC
Potential Partners	Promise Zone staff, SLEDP, retail brokers, developers
Start Time	Year 1
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	Local philanthropy
Goal/s	Identify and rank prospective locations
Tracking Progress	Participation of key retail players; metrics-based evaluation process for identifying locations
Action Item #: CB-5.2	**Pilot retail pop-up initiatives in alternate locations to gauge likelihood of incubator success**
Leader	SLDC
Potential Partners	African, Asian, Black, Bosnian, and Hispanic Chambers of Commerce; Commercial District Coalition; Community Builders Network members; International Institute Community Development Corporation; Invest STL; Missouri Main Street; Promise Zone staff; SLEDP; Vacancy Collaborative; WEPOWER's Elevate/Elevar Accelerator; developers; neighborhood associations
Start Time	Year 1
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	Initially SLDC and from the potential partners and over time could consider being self-funding through TIF (pending participation of a major anchor); local or national philanthropy, such as Invest STL
Goal/s	Create a marketplace for entrepreneurs and small business owners
Tracking Progress	Number of participating businesses, gross sales, sales tax revenue generated

43 Freight Can't Wait: Eight strategies to keep delivery trucks rolling. (2019, November). American Planning Association, Planning. http://www.planning.org/planning/2019/nov/freightcantweight/

Action Item #: CB-5.3	Secure location and funding to build out retail incubator
Leader	SLDC
Potential Partners	African, Asian, Black, Bosnian, and Hispanic Chambers of Commerce; Commercial District Coalition; Community Builders Network members; International Institute Community Development Corporation; Invest STL; Missouri Main Street; Promise Zone staff; SLACO; SLEDP; Vacancy Collaborative; WEPOWER's Elevate/Elevar Accelerator; developers; neighborhood associations
Start Time	Year 1
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	Local or national philanthropy, such as Invest STL; in certain corridors, could be self-funding through TIF (pending participation of a major anchor)
Goal/s	Location and financing set
Tracking Progress	Project ready for RFP

Action Item #: CB-5.4	Pursue a public-private partnership to enable cooperative warehouse, shipping and handling facility (logistics hub) for retail incubator tenants
Leader	SLDC
Potential Partners	Commercial District Coalition, Community Builders Network members, Missouri Main Street, Promise Zone staff, SLACO, SLEDP, Vacancy Collaborative, WEPOWER's Elevate/Elevar Accelerator, developers, neighborhood associations
Start Time	Year 2
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	Local or national philanthropy, such as Invest STL; in certain corridors, could be self-funding through TIF (pending participation of a major anchor)
Goal/s	Create a cooperative distribution and warehousing operation to support online sales and operations of retail incubator tenants
Tracking Progress	Number of participating businesses, gross sales, sales tax revenue generated

Strategy 6	Create local "Priority Zones" in which rezoning, permitting and other processes are expedited and development fees are waived

An important part to city-building is ensuring that historically disinvested and under-developed neighborhoods are prioritized for new and infill city-building opportunities, including housing and other community amenities. The selection of priority zones should strongly take into consideration the existing efforts of community partners. For example, the Lutheran Development Group and Incarnate Word Foundation leverages neighborhood partners, including faith-based groups, to support housing development and revitalization efforts.[44] Friendly Temple has built housing and other neighborhood amenities, including a recreation center and childcare.[45] Friendly Temple also facilitates community lending and is home to a Midwest BankCentre branch,[46] which has made a strong commitment to lending to minority communities and is headed by the region's sole Black/African American CEO of a bank.[47]

Action Item #: CB-6.1	Determine economic need-based criteria in a manner similar to that used to create the tax abatement maps for residential projects under $1 million
Leader	Planning & Urban Design Agency, SLDC
Potential Partners	University urban planning and economics departments
Start Time	Year 1
Duration	6 months
Effort to Implement	Low
Potential Funding	N/A
Goal/s	Develop evaluation criteria
Tracking Progress	Establish analytical team; review practices from other cities

Action Item #: CB-6.2	Coordinate with with partners to draft policy and requisite ordinances designating and implementing "Local Priority Zone" status
Leader	SLDC
Potential Partners	Board of Aldermen, Buildings Dept., Legal Dept., Planning & Urban Design Agency
Start Time	Year 1
Duration	1 year
Effort to Implement	Low
Potential Funding	N/A
Goal/s	Draft policy that spells out criteria for determining eligible areas and benefits available to said areas (e.g., expedited permitting, waived fees, etc.)
Tracking Progress	Policies drafted; ordinances drafted

44 Kukuljan, S. (2019, July 9). *Lutheran Development Group buys Dutchtown apartments, plans affordable housing*. St. Louis Business Journal. https://www.bizjournals.com/stlouis/news/2019/07/09/developer-acquires-dutchtown-apartments-with-plans.html; Lutheran Development Group. (n.d.). https://www.ldgstl.org/

45 Moore, D. (2010, February 7). Urban magnet: Friendly Temple hopes new housing will turn neighborhood around. St. Louis Post-Dispatch. https://www.stltoday.com/news/local/urban-magnet-friendly-temple-hopes-new-housing-will-turn-neighborhood/article_00d3fac4-7079-5807-b89e-0d5705138e56.html

46 *Community Impact Report*. (2018). Midwest BankCentre. https://www.midwestbankcentre.com/assets/files/kj0VAMif/Midwest%20AR%202018%2016%20PG%20AR%2017x11%20F19240.pdf

47 King, C. (2018, October 3). Orvin T. Kimbrough to become region's only black bank CEO. *St. Louis American*. http://www.stlamerican.com/business/business_news/orvin-t-kimbrough-to-become-region-s-only-black-bank/article_b5624c1a-c789-11e8-be0c-d7ea51ab0449.html

Action Item #: CB-6.3	**Present to public and Board of Aldermen for discussion and passage**
Leader	SLDC
Potential Partners	Legal Dept., Board of Aldermen
Start Time	Year 1
Duration	12 months
Effort to Implement	Medium
Potential Funding	N/A
Goal/s	Establish Priority Zones via municipal legislation
Tracking Progress	Find bill sponsor, present to Committee, present to full Board

Strategy 7 — Explore and expand ways to test and apply geospatial capabilities and insights to support city planning priorities

The city's geospatial cluster is already prominent. With the relocation of the NGA headquarters, the cluster's momentum is unprecedented.[48] The cluster is important source of employment, and it can and should be leveraged to elevate the city's planning processes, establish St. Louis as a frontrunner in the geospatial space, and make the city a planning testbed for advanced geospatial technology and insights (e.g., adaptive traffic lights).[49]

Action Item #: CB-7.1	Utilize partnerships with local universities, software businesses and NGA to identify prime opportunities for applying geospatial insights to solving city planning problems
Leader	SLDC
Potential Partners	City, City Chief Technology Officer, Cortex, ESRI, GeoFutures coalition, NGA, Planning & Urban Design Agency, Regional Data Alliance, T-REX, universities
Start Time	Year 2
Duration	6 months
Effort to Implement	Low
Potential Funding	N/A
Goal/s	Identify and rank city planning problems that can most benefit from geospatial planning
Tracking Progress	Coalition formed; objectives identified, problems defined; development of other metrics for how geospatial data can be used for planning purposes (e.g., reduction in illegal dumping incidents)

Action Item #: CB-7.2	Building on the models from previous GlobalHack events,* organize the Hackathon around solving city problems and using city and open source geospatial data
Leader	SLDC
Potential Partners	City, City Chief Technology Officer, Cortex, ESRI, GeoFutures coalition, NGA, Planning & Urban Design Agency, Regional Data Alliance, T-REX, universities
Start Time	Year 2
Duration	24+ months
Effort to Implement	Low
Potential Funding	Philanthropic partners
Goal/s	Attract broad-based talent to improve efficiency of city services and enforcement of city policies; develop substantial prizes and promote the Hackathon throughout the region and beyond as a way of establishing the city's reputation as a global leader in geospatial innovation
Tracking Progress	Number of hackathon participants; amount of corporate engagement

48 Project interviews and roundtables

49 *Geospatial Emergence in St. Louis.* (2020, January 30). Venture Cafe.

* Project interviews and roundtables


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Transportation, Distribution, and Logistics (TDL)

Cluster Vision

St. Louis' under-utilized land and widespread vacancy, including of industrial properties, is a key potential asset in growing both the city's transportation, distribution, and logistics (TDL) segment of the economy and in the process, strengthening the cluster in the region and improving competitiveness against peers. Today, however, lack of focus and commitment, as well as a shortage of tools to address land issues, has resulted in a TDL cluster in the city that is relatively small and not keeping pace with national growth. These conditions stymie opportunities not only in TDL itself but also in complementary activities from agricultural distribution and processing to new retail delivery models. The City of St. Louis needs a TDL cluster that can utilize currently unproductive land, support middle-wage job opportunities, and serve as an asset, not an impediment, to complementary cluster development, leveraging the city's assets, capacity for innovation, and locational advantage. The development of TDL has taken on new importance with the acceleration of new retail and distribution in response to COVID and the potential for localization of supply chains, especially in healthcare-related products, which will require new types of local TDL capacity.

Cluster Overview

TDL has been closely affiliated with the city throughout its history because of its location on North America's largest river. In fact, St. Louis is the northernmost port on the Mississippi River that does not freeze over and is accessible to ships without having to navigate canal locks.[50] As of 2018, its port was the 19th largest in the U.S. by cargo tonnage overall and 8th largest by domestic cargo tonnage, with over 37M tons of cargo volume.[51] It is also the 2nd highest inland port in terms of total tonnage.[52] Additionally, the ports in the St. Louis area boast barge capacity measures that are 2.5X the next most efficient port.[53] According to the Port of New Orleans CEO Gary LaGrange, "The St. Louis region is the envy of the barge industry."[54]

In addition to its robust port assets, St. Louis' impressive transportation infrastructure includes five Class I railroads (one of only a handful cities nationwide with 5+ Class I railroads, and the St. Louis region is actually served by six Class I railroads), numerous intermodal terminals, and a robust highway system. Unlike many of its competitors, the city is served by five interstates: I-55 running north-south and I-70, I-270, I-64, and I-44 running east-west. Both the interstates and railroads have low levels of congestion/traffic compared to Chicago, which makes St. Louis more competitive in the TDL cluster.[55] According to Bureau of Transportation Statistics data, Lambert International Airport ranks 57th among U.S. airports in terms of freight and mail cargo volumes with over 158M pounds shipped in and out of the airport in 2018.[56] However, these volumes could increase significantly with the development of additional TDL firms on sites within the City of St. Louis and adjacent to the airport.[57]

Another competitive advantage of the TDL cluster in St. Louis is the flexibility of its freight infrastructure.[58] The region's TDL infrastructure is considered highly flexible because of its ability to handle different materials and the ease of switching between modes; for example, shippers can quickly change freight modes (e.g., barge to rail or barge to truck, rail to truck, etc.) as tariffs on products (e.g., soybeans) or fuel costs fluctuate, enabling them to achieve real-time cost and time savings. [59]

The TDL cluster can be broken into three distinct segments: distribution, transportation, and supply chain and logistics. Distribution refers to the handling and movement of goods; typically, this will involve the distribution of products that come into St. Louis as bulk cargo or packaged goods and leave in the same packaging. These activities are most commonly associated with the retail and e-commerce models and include huge distribution centers. The distribution segment employs approximately 41.1K employees in the St. Louis MSA.[60]

Transportation refers to the short- and long-distance transportation of materials by truck, rail, boat, or plane. Included in Transportation are truck and delivery drivers, locomotive operators and railroad support workers, ship operators, and airplane pilots and support workers. Within the City of St. Louis, the river terminals and barge operators are an extremely important component of the TDL cluster and value chain. Although there are a few to the north, most of the city's river terminals are located to the south of the McKinley Bridge (see Figure TDL-1). State-generated OES data suggest that the city has about 3.5X the number of "Captains, Mates, and Pilots of Water Vessels" expected for an economy of St. Louis'

50 America's Third Largest Inland Port. (n.d.). Retrieved from The Freightway website: https://www.thefreightway.com/advantages/americas-third-largest-inland-port/

51 *2018 U.S. PORT RANKINGS BY CARGO TONNAGE*. (2018). [American Association of Port Authorities (AAPA)]. http://aapa.files.cms-plus.com/2018%20U.S.%20PORT%20RANKINGS%20BY%20CARGO%20TONNAGE.xlsx

52 St. Louis Region's Inland Port System Climbs to #2 Spot for Total Tonnage. (2020, February 24). Retrieved from The Freightway website: https://www.thefreightway.com/st-louis-regions-inland-port-system-climbs-to-second-spot-for-total-tonnage/

53 America's Third Largest Inland Port. (n.d.). Retrieved from The Freightway website: https://www.thefreightway.com/advantages/americas-third-largest-inland-port/

54 America's Third Largest Inland Port. (n.d.). Retrieved from The Freightway website: https://www.thefreightway.com/advantages/americas-third-largest-inland-port/

55 Project interviews

56 U.S. Department of Transportation, Bureau of Transportation Statistics T-100 data, 2018

57 Project interviews and roundtables

58 Project interviews and roundtables

59 Project interviews and roundtables

60 BLS OES data; Mass Economics analysis

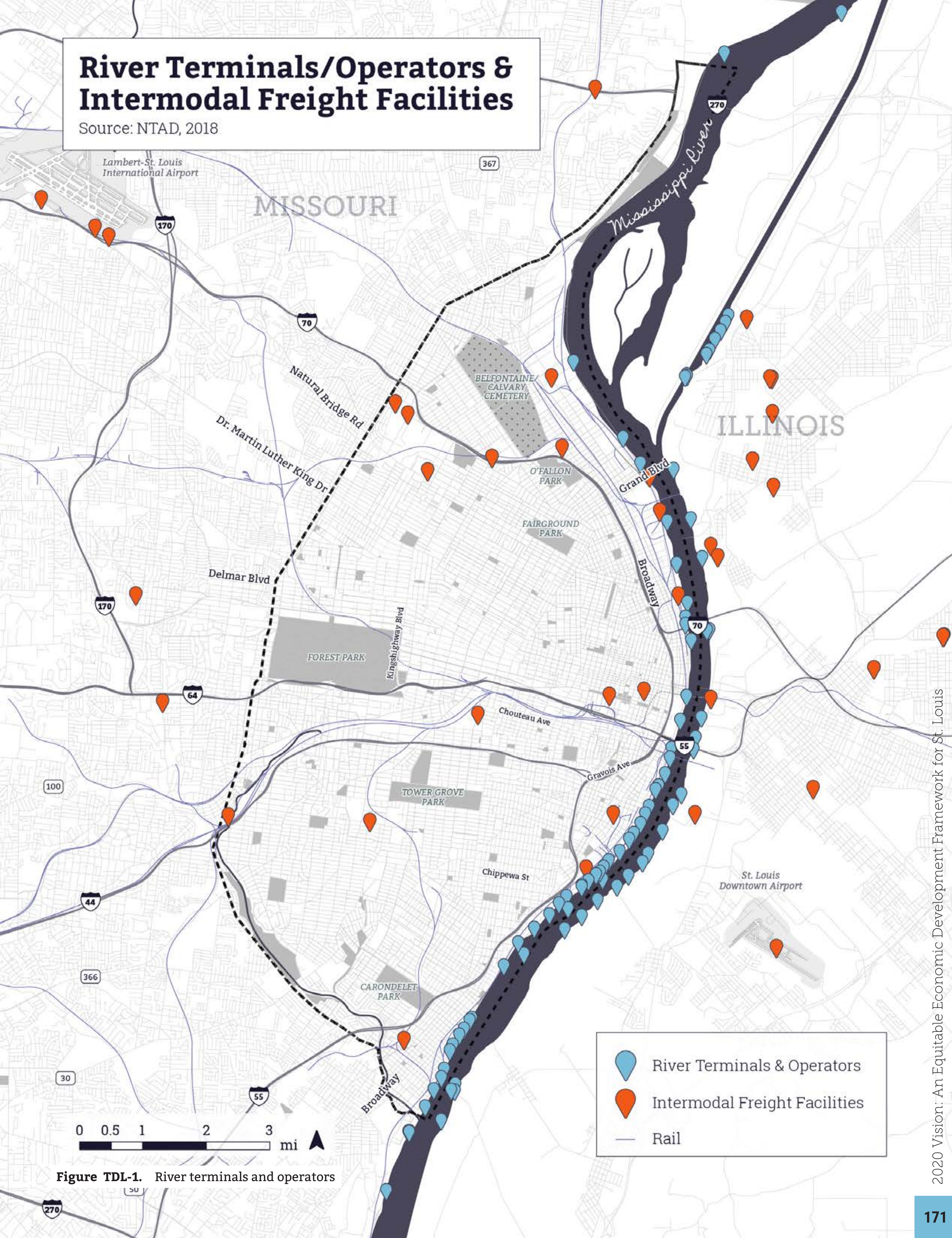


Figure TDL-1. River terminals and operators size.[61] The Transportation segment employs approximately 31.1K employees across the St. Louis MSA.[62]

Supply chain and logistics (SCL) refers to the management of goods, from procurement and purchasing, to freight agents and packaging, to development of algorithms to minimize travel times. Included in SCL are buyers, purchasing, cargo, and freight agents and managers and other value added activities, like logisticians, but also overnight delivery of prepared foods and consumer goods. The SCL segment employs approximately 10.1K employees in the St. Louis MSA, but is not a target growth area in this framework, which focuses instead on growing opportunities by creating land assets that currently don't exist in the city.[63]

These three segments have distinct job requirements but both the distribution and transportation segments offer highly accessible jobs to workers. Sixty-five percent of distribution jobs only require a high school diploma or less, compared to 35% of jobs economy-wide, but distribution wages are only about $36K (versus $50K overall). The transportation segment offers higher wages ($46K) than distribution and 61% of its jobs are still accessible to those with only a high school diploma or less. Work in SCL, however, tends to be highly skilled, with 40% of jobs in the six most common occupations requiring at least a bachelor's degree and 76% requiring at least some college, compared to only two-thirds overall. (See Figure TDL-2.) SCL wages, at $76K, are over 1.5X the economy average wage.

Growth in these segments has diverged in surprising ways from 2010 to 2018. (See Figure TDL-3.) The distribution segment in the region outperformed the U.S., growing by 33% (versus 27%) and adding approximately 10.1K jobs. The transportation segment, however, only grew by 2% in the region (adding only about 600 jobs) while growing 17% in the U.S. Like the transportation segment, the supply chain and logistics segment also underperformed the U.S., growing by about half (8%) the U.S. rate of 16% and adding about 800 jobs in the region. The U.S. Bureau of Labor Statistics projects both the distribution and transportation segments to grow nationally by about 3.6% over the next ten years (adding thousands of jobs), but the SCL segment, driven by projected declines for Buyers and Purchasing Agents and Procurement Clerks, is projected to decline slightly overall by less than 1%.[64]

61 Missouri Economic Research and Information Center; BLS OES data; Mass Economics analysis

62 BLS OES data; Mass Economics analysis

63 BLS OES data; Mass Economics analysis

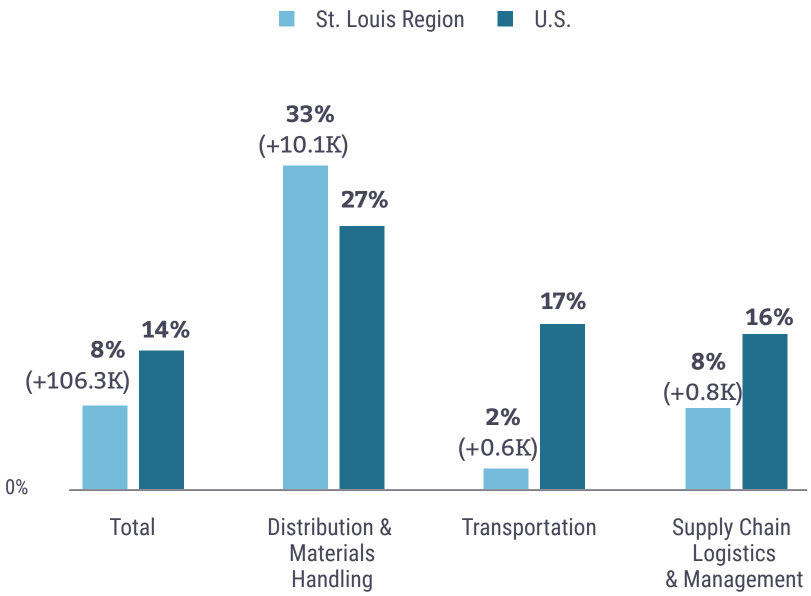
64 BLS OES, 2018; BLS Employment Projections Program; It is worth noting that the rest of the SCL occupations are all projected to grow

Figure TDL-2. Education requirements for TDL cluster segments in St. Louis MSA

TDL Cluster Segment	% Less than high school	% High school or equivalent	% Some college or Associates	% Bachelor's Degree or more
Distribution and Materials Handling	19%	46%	28%	7%
Transportation	15%	46%	30%	9%
Supply Chain Logistics and Management	3%	20%	37%	40%
Total Economy	9%	26%	33%	32%

Source: BLS OES and Employment Projections Program, 2018; Mass Economics analysis

Figure TDL-3. Growth of TDL occupation clusters in the St. Louis region, % (Number of jobs), 2010-2018



Source: BLS OES, 2010-2018; Mass Economics analysis

Cluster Growth Opportunities

Although TDL is not a strength in the city, it employs over 10K and is highly accessible to workers with lower levels of education. (See Figure TDL-4.) With world-class, flexible TDL infrastructures, a strong, regional cluster organization (the Freightway), nationally known anchors helping to develop the TDL workforce,[65] and some of the best developers in the nation,[66] the most important challenge and opportunity for supporting TDL growth in the City of St. Louis is the availability of appropriate sites. One interviewee noted that "land assembly has always been one of the big challenges in St. Louis… [and the] city needs an actual systematic plan for parcel assembly."[67] TDL is among the most land-intensive clusters, and its land and building requirements have been increasing rapidly over time.[68] TDL users generally need five-acre sites at minimum, but 10-30 acre sites are preferred and new, major distribution hubs (with 1M-2M sq. ft. of warehouse space) often target 50 to 200 acre sites.[69] (See Ch. 5: Places for a review of the city's opportunity sites.)

St. Louis' vacant and underutilized land – particularly on and near the riverfront, but also elsewhere in the city, like at Mark Twain Industrial Park – offer tremendous potential upside for the TDL cluster. In turn, the productive use of the city's land assets can

> **"…land assembly has always been one of the big challenges in St. Louis… [and the] city needs an actual systematic plan for parcel assembly."**

65 Washington University's Olin Business School offers a Master's degree in Supply Chain Management and Ranken Tech is nationally known for their workforce development models and track record of partnerships with large firms. Source: Project interviews and roundtables

66 Project interviews and roundtables

67 Project interviews and roundtables

68 Project interviews and roundtables; previous Mass Economics projects and analytics

69 Project interviews and roundtables; previous Mass Economics projects and analytics

support middle-wage job creation, as well as activity in complementary clusters. SLDC has two critical roles – described in more detail below – to support the growth of the TDL cluster, including creating the land assets TDL needs through the assembly of public and private parcels into developable sites and developing new policies and funding streams to reduce risks and support TDL development in the City of St. Louis.

One option is the patient capital note, which has been utilized by the Port of Cincinnati to assemble and redevelop vacant industrial land. The five-year notes can be used on "capital projects related to site acquisition and repositioning." The Port of Cincinnati has an overall goal of repurposing 500 acres of city using up to $60M in patient capital notes and quickly identified and funded projects after raising $8.8M from philanthropic, corporate, and high net worth investors.[70] The success of this model shows the potential of impact investing on land repurposing and creation of high-quality local jobs.

Complementing a development entity that finances projects is the ability of SLDC itself to identify potential assemblies of public and private land holdings with an assembled value that exceeds the value of the independent holdings. This intelligence, along with strategic land acquisitions and ability to work with the city to create land assets by dissolving roads, repurposing public buildings, etc., could create equity to finance individual assemblies and developments.[71]

Figure TDL-4. Overview of TDL opportunity

Measure	TDL Cluster	Total City Economy
Jobs, 2018 (K)	10.6	227.3
Location Quotient (LQ)	0.7	n/a
Projected Additional Jobs, 2028	330	13,200
Jobs Requiring Less than a Bachelor's Degree (%)	88%	64%
Average Wage ($K)	$47.0	$54.7
Geography	Carondolet/Patch, South Riverfront/Kosciusko, North and Near North Riverfront, Mark Twain	n/a
Examples of Types of Jobs	Truck Drivers, laborers and material movers, logisticians, buyers and purchasing agents	n/a

Source: BLS OES, Mass Economics Analysis
Note: These estimates are based on occupation data and include public sector employment

For at least three reasons, the TDL cluster presents a timely opportunity that is well-suited to the City of St. Louis' assets. TDL is a complement to manufacturing, as well as evolving food and retail models, which increasingly have a digital component and, while instituted in response to the pandemic, may represent the "new normal" for some activities and businesses, even after the pandemic subsides. Furthermore, sales tax regulations associated with online purchasing are evolving and likely to continue to evolve; sales tax revenue could eventually be tied to distribution capacity. Finally, TDL offers an opportunity to innovate models of land use to make more of the city's land productive.

70 *Patient Capital Fund.* (n.d.). The Port - Cincinnati. Retrieved from https://www.cincinnatiport.org/what-we-offer/impact-investing/patient-capital-fund/; *Port Authority uses Impact Investing to drive Industrial Revitalization.* (2017, July 10). The Port - Cincinnati. https://www.cincinnatiport.org/impact-investing-to-drive-industrial-revitalization/

71 Previous Mass Economics project for the Atlanta BeltLine, "TAD Optimal Land Use Analysis," 2018.

Strategies and Action Steps

Strategy 1	Equip SLDC to grow and support the TDL cluster

In order to support the cluster, SLDC must be prepared to expand staff knowledge and intentionally build TDL into the business retention and expansion (BRE) program, discussed in more detail later in this chapter. Important considerations include current and future real estate needs, an inventory of firms in the cluster, and tracking the potential impact of the cluster on the environment. SLDC should also support efforts to expand the Port Authority's boundaries, which will open up access to new programs and funding streams, and other city and regional infrastructure improvement efforts. Already, the city and region are considered competitive when it comes to winning federal grants, and these efforts should continue to be supported.[72]

Action Item #: TDL-1.1	Hire a TDL expert at SLDC
Leader	SLDC
Potential Partners	AMIC (Advanced Manufacturing Innovation Center, Freightway, Port Authority, RAMP (Regional Advanced Manufacturing Partnership), SLEDP
Start Time	Year 1
Duration	3-6 months
Effort to Implement	Medium
Potential Funding	City, SLEDP, SLDC
Goal/s	High quality hire with expertise that extends to manufacturing
Tracking Progress	List of strong potential candidates, vetted by industry contacts

Action Item #: TDL-1.2	Incorporate TDL into the business retention and expansion program
Leader	SLDC
Potential Partners	SLEDP
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Low
Potential Funding	City, SLEDP, SLDC
Goal/s	Aim to meet with firms with 100+ employees at least annually, and for those with 50 to 100 employees bi-annually, and those with less than 50 employees once every three years
Tracking Progress	BRE survey results inputted into CRM system

72 From 2009 to 2020, the city ranked 9th out of 428 counties in terms of amount awarded per square mile ($619.5K), higher than the region's average ($11.3K, ranking 65th out of 111 metropolitan and micropolitan statistical areas receiving at least two TIGER/BUILD grants). Source: **USDOT TIGER and BUILD grant data, 2009-2020; Mass Economics analysis**

Action Item #: TDL-1.3	**As part of the larger BRE program, understand the current and potential future implications for land use and distribution/warehousing building design by convening regular meetings of industry and real estate partners**
Leader	SLDC
Potential Partners	City; Port Authority; real estate developers; TDL, commercial, and industrial businesses
Start Time	Year 2
Duration	Indefinite annual or quarterly meetings
Effort to Implement	Medium
Potential Funding	Fund through local or national philanthropy
Goal/s	Gain awareness of current and future site and building needs; integrate learnings of TDL demands into the creation of parcel assemblies into sites for TDL firms; apply learnings to other industry clusters (e.g., agtech) and relevant cluster organizations (e.g., 39N, World Trade Center, Bi-State Development's Freightway Initiative)
Tracking Progress	Attendance at convenings; updated profiles of TDL demands by specific users

Action Item #: TDL-1.4	**Establish database of TDL businesses by industry subsector and employment**
Leader	SLDC
Potential Partners	AllianceSTL, Regional Chamber, SLEDP
Start Time	Year 1
Duration	6 months
Effort to Implement	Medium
Potential Funding	N/A
Goal/s	Capture an accurate and continuously updated picture of the manufacturing sector in the City of St. Louis
Tracking Progress	Database list comports with external sources, and a mechanism is established for regular updates

Action Item #: TDL-1.5	**Develop an environmental equity scorecard to evaluate current and future TDL and manufacturing developments and monitor racial disparities in public health related to these industries**
Leader	SLDC
Potential Partners	Department of Health, Missouri Coalition for the Environment, Sierra Club, SLACO, Vacancy Collaborative, WashU Environmental Law Clinic
Start Time	Year 2
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	Local philanthropy
Goal/s	Reduce the environmental and neighborhood impact of new industrial development; eliminate racial disparities in public health
Tracking Progress	Development of an evaluative environmental scorecard
Action Item #: TDL-1.6	**Expand the existing Port District, which will afford more opportunities for the use of port-related development tools: PID's, AIM Zones, Port Security Grants, FEMA reimbursement, and issuance of bonds that can assist business expansion**
Leader	Port Authority
Potential Partners	Board of Alderman
Start Time	Year 1
Duration	2 years
Effort to Implement	Medium
Potential Funding	N/A
Goal/s	Add wards/districts/corridors in which Port Authority development tools can be utilized
Tracking Progress	Aldermanic board bills passed

Action Item #: TDL-1.7	**Support ongoing city and regional initiatives related to freight infrastructure**
Leader	SLDC
Potential Partners	Freightway, IDOT, MODOT, Port Authority, Streets Dept., Terminal Railroad Association
Start Time	Year 2
Duration	Ongoing
Effort to Implement	Low
Potential Funding	Internal
Goal/s	Provide support as needed to ensure that the city and region maintain high-quality infrastructure that supports the current and future needs of the cluster
Tracking Progress	Participation in city and regional discussions about freight infrastructure

Strategy 2	Utilize the land assembly fund to cover acquisition, predevelopment and site preparation costs for targeted areas

Many TDL activities have onerous land requirements, and growth of the TDL cluster within the City of St. Louis will require the creation of large-scale, multi-acre sites facilitated by the land assembly fund (see Ch. 5: Places – Land Assembly, Strategy 2). Although daunting, the public sector can and must carry out much of the legwork associated with land assembly by conducting preliminary site feasibility studies for current opportunity sites: addressing current and future infrastructure needs, coordinating public agencies and land holdings, and tracking future assembly opportunities. In light of recent legislation changes around the sales tax treatment of distribution centers, it is important that these activities remain flexible and responsive as legislation evolves.[73]

Action Item #: TDL-2.1	**Convene financial, legislative and philanthropic partners to design a holding trust and funding mechanism(s) for the land assembly fund:**
TDL-2.1.1	Assess the viability of patient capital notes to finance land assembly and site prep.
TDL-2.1.2	Continue investigating opportunities for the Port Authority to leverage state incentives to support industrial activity and work with the state of Missouri to create (where necessary) and expand programs that encourage land assembly
Leader	SLDC
Potential Partners	Arch to Park, Board of Aldermen, CDFI Coalition, Community Builders Network, Invest STL, Mayor's Office, Port Authority, Vacancy Collaborative, CDFIs, financial institutions and local lenders, other philanthropic partners
Start Time	Year 1
Duration	12 months
Effort to Implement	High
Potential Funding	Philanthropic and government sources
Goal/s	Establish sustainable structure and funding for the land assembly fund
Tracking Progress	Full participation of financial and philanthropic partners; operational and capitalized land assembly fund

73 Brown, L. (2017, January 26). Amazon to begin charging sales tax in Missouri. *St. Louis Post-Dispatch*. https://www.stltoday.com/business/local/amazon-to-begin-charging-sales-tax-in-missouri/article_6f9bb7b9-53b8-5b88-9a80-cc3f022b51a8.html

Action Item #: TDL-2.2	**Create an annual list of top large sites to support the growth of TDL and other key clusters**
Leader	SLDC manufacturing expert
Potential Partners	AllianceSTL, Port Authority, commercial brokers
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	SLDC; potential fee model to support longer-term
Goal/s	Establish an accurate inventory of available spaces and an annual list of key acquisition activities; assess strategic use of Port Authority's condemnation powers, where necessary; prioritize sites while taking into account Port Authority development plans
Tracking Progress	Quality and utilization of inventory

Action Item #: TDL-2.3	**Provide "shovel ready" sites for TDL**
TDL-2.3.1	Assemble parcels to provide sufficient space for larger industrial businesses
TDL-2.3.2	Remove environmental constraints such as geotechnical corrections or environmental contamination
TDL-2.3.3	Prioritize larger sites for TDL purposes and smaller sites for uses determined by the working group
TDL-2.3.4	Provide clear land records and clean titles to properties
TDL-2.3.5	Advertise available sites to make them easy for developers and businesses to find
TDL-2.3.6	Invest in strategic industrial assets
Leader	Redevelopment Fund
Potential Partners	SLDC, Vacancy Collaborative
Start Time	Year 2
Duration	Ongoing
Effort to Implement	High
Potential Funding	Philanthropic and government sources
Goal/s	Utilize funds to assemble and prep sites to enable future development
Tracking Progress	Site acquisition, site cleanup, utility placement, master planning, RFP to solicit master developer(s), number of sites created, acreage of sites created, building square footage supported, number of jobs supported, new taxes generated

Action Item #: TDL-2.4	**Undertake a market study on designated areas to determine where investments should be targeted and advantages to city sites (including site characterization and market assessment)**
Leader	SLDC
Potential Partners	AllianceSTL, Regional Chamber, SLEDP
Start Time	Year 2
Duration	6 months
Effort to Implement	Medium
Potential Funding	Local philanthropy, Community Improvement District, areawide TIF
Goal/s	Prioritize areas for near-term investments; consider how longer-term trends could affect site selection (e.g., climate change, disaster recovery) and plan accordingly
Tracking Progress	Completed study

Action Item #: TDL-2.5	**Evaluate the prospects for industrial community development corporations (CDCs) that can seek out external funding and hold real estate**
Leader	SLDC
Potential Partners	AllianceSTL, Regional Chamber, SLACO, SLEDP
Start Time	Years 3-5
Duration	6 months
Effort to Implement	Medium
Potential Funding	Local philanthropy
Goal/s	Create local partners for Community Improvement Districts
Tracking Progress	Determined feasibility and utility of industrial CDCs

Strategy 3 — Using the Industrial Preservation Area (BIPA), streamline development processes for TDL businesses in targeted areas

City planning officials must continue to evolve their understanding and acceptance of how modern production activity is adaptable to urban settings. Boston's Back Streets program, established in 2001, provides a template that St. Louis can follow. The program started as an industrial land preservation initiative that branched out to include business support services oriented specifically to industrial businesses including start-ups. At its core, Back Streets led to the designation of protected industrial districts and established an industrial parcel replacement requirement for the rezoning of non-designated industrial sites. A similar program is proposed here to streamline development processes for TDL businesses.

Action Item #: TDL-3.1	**Determine geographic target areas and policy guidelines for expedited permitting of TDL businesses**
Leader	SLDC
Potential Partners	Buildings Dept., Planning & Urban Design Agency
Start Time	Year 2
Duration	6 months
Effort to Implement	Medium
Potential Funding	Internal
Goal/s	Promote manufacturing growth and consolidation of industry into target districts
Tracking Progress	Number of businesses filing for permits in target areas

Source: St. Louis Makes
St. Louis Makes Factory Tour at Goebel Furniture in June 2015

Manufacturing

Cluster Vision

Manufacturing provides a broad set of benefits to the St. Louis economy: small and mid-sized firms have led a renaissance in once-vanishing industries like textiles, apparel, and leather goods that complement the city's existing strength in fashion; the capability to engage in production can only enhance some of the city's other key creative clusters like design and media; and the vitality of manufacturing plays an important role in the "St. Louis Makes" and "STL Made" branding efforts and more broadly, showcases the city's economy that can be used in national attraction and local retention efforts. But the greatest promise of the cluster lies in the possibilities for creating a next generation of ownership that is as racially and ethnically diverse as the city itself.

Cluster Overview

The Manufacturing sector is an important contributor to employment and entrepreneurship in St. Louis City, supporting 18,000 jobs in 2018. The smaller manufacturing establishments with fewer than 100 employees account for about 40% of these jobs. In the literature, these are referred to as "urban manufacturers."[74] As a cluster, urban manufacturers can include things like craft and artisanal activities, fashion and apparel, woodworking and furniture making, and small scale food production, among many other types of activities. Despite gradual losses across the country, if we consider small urban manufacturers as a single cluster, its 7,500 jobs in would be the city's third largest traded cluster, trailing only business services and education. Because of their size, these establishments often have specific and unique challenges stemming from limited resources for functions such as managerial and human resources staff, product development, market analysis, etc.[75] In St. Louis, smaller manufacturers are also more likely to locate outside of industrial districts, creating challenges with "neighborhood-level pressures such as conflicting transportation priorities, nuisance ordinances, and land use conversion pressure." [76]

Manufacturing remains a source of inclusive opportunity in the City of St. Louis, with high average wages ($74K vs. $61K for the total economy) and just under half (48% vs. 33% for the total economy) of all jobs filled by workers with no more than a high school diploma.[77] Manufacturing is also a rich source of entrepreneurship, with privately-held firms (i.e., not publicly traded firms) in St. Louis accounting for about 55% of sector employment, a rate that is dramatically higher among smaller firms.[78] Because of this, small-scale manufacturing is also an under-appreciated and, in some cases, squandered source of wealth: with selling prices of manufacturing firms currently at about one times revenue, we estimate that the total value of privately-held manufacturing firms in the city is about $2.7B, about 40% ($1.1B) of which is associated with firms with fewer than 100 employees.[79] Manufacturing activities also provide local economic benefits because of high multipliers and as one local expert notes, "Manufacturing is one of the last sectors where [a firm] can enter small and scale."[80]

Manufacturing is important to the overall equitable economic development strategy for other reasons, as well. First, although manufacturing employment has declined in St. Louis since 2010 despite solid national growth,[81] slowing or reversing the decline would provide as much or more benefit to the city and its residents than adding a similar number of jobs in a new sector because of its inclusive underpinnings, entrepreneurial nature, and potential economic impact. Second, although manufacturing has been much less dynamic than the rest of the economy with only about 10% of employment at firms having been started in the last decade compared to 20% for the total economy,[82] older firms have the virtue of much lower failure rates, suggesting that at least some existing firms could be stabilized or grown with relatively

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74 Mistry, N., and Byron, J. (2011). *The Federal Role in Supporting Urban Manufacturing.* What Works Collaborative. https://www.urban.org/sites/default/files/publication/26966/1001536-The-Federal-Role-in-Supporting-Urban-Manufacturing.PDF

75 Foggin, M. (2018). *The State of Urban Manufacturing: Milwaukee City Snapshot.* Urban Manufacturing Alliance. https://www.urbanmfg.org/wp-content/uploads/2018/05/Urban-Manufacturing-Alliance-State-of-Urban-Manufacturing-Milwaukee-City-Snapshot.pdf; Next Street Financial and Mass Economics, City of Boston Small Business Plan, March 2016; *St. Louis Makes.* (n.d.). Retrieved from https://stlouismakes.org/

76 Coffin, Sarah L. "Urban Manufacturing in St. Louis: How we understand the small to midsized market." Saint Louis University, Urban Planning and Development Program: School of Social Work, January 2, 2020.

77 QCEW/UDP 2018; BLS Employment Projections Program

78 Survey of Business Owners, 2012

79 In order to estimate revenues at privately held (i.e., not publicly traded firms) manufacturing firms in the City of St. Louis, the project team combined QCEW and Survey of Business Owner data. First, we utilized the U.S. Census Bureau's SBO 2012 data to identify the share of mfg. jobs at privately held firms in the City of St. Louis; we applied this share to the 2018 QCEW jobs data to create a current mfg. jobs at privately held firms estimate. Then, using national SBO data, we split our mfg. jobs at privately held firms estimate for the City of St. Louis by the national firm size break out for privately held mfg. firms from the SBO. Next, we calculated the national sales per employee for mfg. firms broken out by firm size. Then we multiplied our broken-out privately held mfg. jobs estimate by the firm-size-specific sales per employee numbers to generate revenue estimates for privately held mfg. firms by firm size breakouts in the City of St. Louis. We then inflation-adjusted the 2012 SBO revenue estimates into 2018 dollars and summed the results to generate City of St. Louis manufacturing and urban manufacturing (emp <100) revenue estimates; What's My Manufacturing Business Worth? (2018, May 22). Manufacturing. Net. https://www.manufacturing.net/supply-chain/blog/13122858/whats-my-manufacturing-business-worth

80 Innovate St. Louis and Innovation in Process, "Strategic Plan to Promote Advanced Manufacturing in the St. Louis Region," March, 2013; Project interviews and roundtables

81 Across the U.S., employment in manufacturing grew 10% between 2010 and 2018 versus 17% for the entire economy; in St. Louis, the numbers were -8% and +9%. Source: QCEW/UDP

82 U.S. Census Bureau, QWI 2017

modest interventions.[83] Third, maintaining manufacturing employment is critical to the stability of the city's employment centers and districts; in over half of the thirteen centers/districts, manufacturing accounts for at least 20% of total employment.[84] These firms often complement commercial and mixed-use activities, and, in some areas, like the Route 66 employment district, legacy and new manufacturing activities are part of the community fabric and identity.

Tactically, shoring up manufacturing can require interventions that are much more modest in scope and cost than those required to recruit new firms or grow new industries. Across the manufacturing spectrum are experienced entrepreneurs and firms that have survived multiple economic downturns, and there is a foundational infrastructure to serve these businesses. For example, St. Louis Makes focuses on helping mid-sized manufacturing firms scale products and top-line revenue and profits, with specific programs aimed at addressing management challenges and succession issues. Created by MADE and Third Degree Glass Factory, the Delmar Maker District (DMD) supports the space needs of "makers, artists, designers, and entrepreneurs" and helps streamline how these makers can bring their products to market.[85] St. Louis University (SLU) has researchers focused on larger scale manufacturing issues and policy approaches for stabilizing or growing the cluster. The Fashion Fund established the Fashion Incubator, a 24-month engagement to support young firms in the fashion industry.[86] The rich entrepreneurial ecosystem in the city and region has various programs for businesses looking for capital and creating more equitable economic opportunity (e.g., SBA, Justine Petersen, etc.).[87] If focused on small urban manufacturing, these resources could support growth that could help shrink social and geographic gaps.

Manufacturing Activities

Manufacturing in St. Louis city roughly bifurcates into two groups. (See Figure M-1.) In the first group are the largest industries by employment—chemicals, food, and beverage and tobacco products. Collectively, these three industries account for about 10,800 jobs, of which only 22% are in establishments with fewer than 100 employees. These industries are major exporters – firms include, for example, Anheuser-Busch – with an average (weighted) location quotient of 2.5. (A location quotient, or LQ, measures a cluster's concentration in a given geography relative to the U.S.) Although dominated by the big players, these industries include, of course, smaller firms that would be classified under urban manufacturing.

The second group includes all of the manufacturing industries in which at least one-third of jobs are at small establishments. These industries range from fabricated metal and machinery to apparel and textile products. Apparel employs over 300 people in the city and is a good example of linking design and production, also providing inclusive opportunities for harder-to-employ workers. Collectively, they employ about 6,300 workers, of which 73% (~4,600) work at small establishments. The average location quotient is 0.4, suggesting that exports account for a much smaller proportion of sales than for the first set of industries.

In terms of establishment types, small urban manufacturers can be categorized as micro, small, established, or competitive. Moves into higher categories are associated with more employees and/or higher revenue, but most critically, increased revenue per employee. (See Figure M-2.) Nationally, entrepreneurial ecosystems tend to be overweight in generic offerings like business planning or smaller firms and often ignore larger, established firms that are assumed to have reached their growth aspirations or potential.[88] St. Louis Makes is an exception, with a focus on helping established firms (>$2M in sales). As programming for manufacturing is developed, it is critical to support the pipeline of smaller firms but to also recognize the great potential for substantial growth in the city's manufacturing establishments in the 20 to 100 employee range.

83 *Report to the Congress on the Availability of Credit to Small Businesses*. (2017). Board of Governors of the Federal Reserve System. https://www.federalreserve.gov/publications/2017-september-availability-of-credit-to-small-businesses.htm

84 QCEW/UDP, 2018 and YTS, 2018; Mass Economics analysis

85 *What is the Delmar Maker District?* (2019, September 6). MADE STL. https://madestl.com/delmar-maker-district-faq/

86 *Incubator.* (n.d.). Saint Louis Fashion Fund. Retrieved from https://www.saintlouisfashionfund.org/incubator

87 Project interviews and roundtables

88 Next Street Financial and Mass Economics, City of Boston Small Business Plan, March 2016; Mass Economics, "Assessment of Innovation and Entrepreneurship Ecosystem." Report prepared for New Economy Initiative of Southeast Michigan, November, 2018.

Figure M-1. City of St. Louis urban manufacturing summary table, 2018

Industry	Total Employment	Location Quotient	Est. % of Jobs at Small Estab.	Est. % of Jobs at Larger Estab.
Group 1				
Chemical Manufacturing	4,420	3.3	28%	72%
Food Manufacturing	3,510	1.4	20%	80%
Beverage and Tobacco Product Manufacturing	2,900	6.5	14%	86%
Group 1 totals	**10,830**	**2.5**	**22%**	**78%**
Group 2				
Fabricated Metal Product Manufacturing	1,360	0.6	69%	31%
Machinery Manufacturing	700	0.4	79%	21%
Furniture and Related Product Manufacturing	670	1.1	45%	55%
Printing and Related Support Activities	630	0.9	85%	15%
Paper Manufacturing	500	0.9	57%	43%
Electrical Equipment, Appliances, Components	460	0.7	34%	66%
Primary Metal Manufacturing	350	0.6	100%	0%
Plastics and Rubber Products Manufacturing	340	0.3	100%	0%
Apparel Manufacturing	310	1.7	100%	0%
Nonmetallic Mineral Product Manufacturing	230	0.3	100%	0%
Textile Product Mills	210	1.1	100%	0%
Transportation Equipment Manufacturing	190	0.1	68%	32%
Wood Product Manufacturing	160	0.3	47%	53%
Leather and Allied Product Manufacturing	130	2.9	100%	0%
Computer and Electronic Product Manufacturing	80	0.0	100%	0%
Group 2 totals	**6,320**	**0.4**	**73%**	**27%**

Source: QCEW/UDP for total employment; YTS data for urban manufacturing estimates

Cluster Growth Opportunities

Urban manufacturing employs 7.4K people and is a slight strength in the city (see Figure M-3). Urban manufacturing can be thought of as a target cluster not because of shared industry ties but because of common challenges, including those related to operating in relatively activity-dense environments (compared with greenfield models); reliance on craft or small batch production; business operation challenges associated with private ownership, weakly developed management structures, and scale; and workforce challenges associated with recruiting and training workers in a sector of the economy that is often viewed/assumed/seen as stagnant. Addressing these operational issues is the key to stabilizing or even growing small-scale manufacturing employment in St. Louis.

> **"Urban manufacturing offers deep potential to transfer ownership to diverse owners. There are lots of opportunities but we have to get people with the purse strings to understand this."**

Figure M-2. Urban manufacturing segments

Segment	Definition	% of Establishments	% of Revenue	% of Employment
Micro	<10 employees and <$0.5M sales	19%	1%	3%
Small	>10 employees or (>=$0.5M to <$2M) sales	36%	4%	17%
Established	10 to 49 employees or (>=$2M to <$10M) sales	27%	11%	27%
Competitive	50 to 99 employees or >=$10M sales	18%	84%	53%

Source: YTS data; Mass Economics analysis

Figure M-3. Overview of urban manufacturing opportunity

Measure	Urban Manufacturing Cluster	Total City Economy
Jobs, 2018 (K)	7.4	200.1
Location Quotient (LQ)	1.06	n/a
Projected Additional Jobs, 2028	-210	11,900
Jobs Requiring Less than a Bachelor's Degree (%)	79%*	65%
Average Wage ($K)	$74.0*	$61.2
Geography	Route 66, Mark Twain, North and Near North Riverfront, South Riverfront/Kosciusko, Carondolet/Patch, South	n/a
Examples of Types of Jobs	Furniture making, woodworking, apparel manufacturing	n/a

Source: QCEW-UDP, YTS; Mass Economics analysis

Note: These estimates are based on industry data and exclude public sector employment; projected additional jobs are based on the manufacturing sector overall and assume the same share of urban manufacturing jobs in 2028

*: Measures refer to manufacturing sector overall

Strategies and Action Steps

Strategy 1	Equip SLDC to grow and support the manufacturing cluster

Urban manufacturing firms often struggle to find the right real estate to start or expand a business, and the market is generally under-served by commercial brokers. SLDC should address these issues by creating in-house expertise on urban manufacturing and consolidating information about real estate options, incentive zones, etc. for these firms and providing information on available supports to firms looking to expand within the city. This expertise should be curated to include other manufacturing initiatives, such as the Fashion Manufacturing Initiative proposed in the St. Louis Garment District Report.[89]

Action Item #: M-1.1	Incorporate manufacturing into the business retention and expansion program
Leader	SLDC
Potential Partners	Missouri Enterprise, SLEDP
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Low
Potential Funding	N/A
Goal/s	Aim to meet with manufacturers with 100+ employees at least annually, and for those with 50 to 100 employees bi-annually, and those with less than 50 employees once every three years; gain awareness of current and future site and building needs
Tracking Progress	BRE survey results inputted into CRM system

Action Item #: M-1.2	Establish database of manufacturing businesses by industry subsector and employment
Leader	SLDC
Potential Partners	AllianceSTL, Regional Chamber, SLEDP, St. Louis Makes
Start Time	Year 1
Duration	6 months
Effort to Implement	Medium
Potential Funding	N/A
Goal/s	Capture an accurate and continuously updated picture of the manufacturing sector in the City of St. Louis
Tracking Progress	Database list comports with external sources, and a mechanism is established for regular updates

89 *Garment District Placemaking Initiative*. (2019). Downtown STL. https://downtownstl.org/wp-content/uploads/190218_STL_Garment_District_Report_comp_email.pdf

Action Item #: M-1.3	Develop incentives to bring manufacturers to the region, starting with outreach to companies already headquartered in St. Louis with offshore manufacturing operations
Leader	SLDC
Potential Partners	GlobalSTL, Missouri Enterprise, SLEDP, St. Louis Makes
Start Time	Year 2
Duration	12-18 months
Effort to Implement	Medium
Potential Funding	Internal
Goal/s	Attract manufacturers to the region; encourage reshoring of manufacturing activities; expand cluster opportunities while growing area businesses
Tracking Progress	Roll-out of manufacturer-specific incentives; number of manufacturers attracted; number of area businesses that reshore their manufacturing activities

Strategy 2 — Create Design-Build District(s) leveraging the Industrial Preservation Areas and ecosystem of wraparound services geared to manufacturers

THE CITY MUST PRIORITIZE THE DEVELOPMENT OF A PHYSICAL PLACE WHEREIN MANUFACTURING INNOVATION AND GROWTH IS ENCOURAGED AND WELL-RESOURCED.

The city must prioritize the development of a physical place wherein manufacturing innovation and growth is encouraged and well-resourced. This requires more than just land and buildings where successful manufacturers can scale-up their businesses; it also requires the same ecosystem-building embrace that the city has historically afforded technology companies, relocating corporations, or scaling businesses of any type.

A recent study from SLU's urban planning program estimates that about one in three manufacturing establishments in the city lies "outside of formalized industrial corridors," typically on "single, scattered industrial sites that are either nonconforming with current zoning designations…or zoned for industrial use but vulnerable to rezoning pressure."[90] These locations are challenging for firms for multiple reasons, some of which are likely to hamper potential growth. For establishments on the edge of industrial districts that are converting, SLU notes that investment and expansion are limited "over fears that they will get kicked out before realizing a return on their investments." Offering tools (e.g., real estate services to find new sites) and incentives (e.g., grants for moving costs, tax abatements, a city sales tax exemption on manufacturing items) combined with programming would help to retain and stabilize these firms, strengthen preferred industrial districts, and open land in areas transitioning away from industrial for new and infill development.

On the capital side, manufacturers often have unique capital needs with higher needs for financing around site acquisition and build-out. Among SBA 7(a) loans, St. Louis manufacturing companies only receive 32 loans per 100K manufacturing jobs versus just under 37 nationally. Nationally, 62% of 7(a) loans made to manufacturing firms are for amounts of over $100K as compared to only 53% for other firms (a percent difference of 18%). Over a quarter of 7(a) loans to manufacturing firms are for over $500K versus less than a fifth for other firms – a 29% difference.

Finally, proximity between design and production teams is another of the key factors to the success of urban manufacturing districts. This proximity can greatly aid in speed-to-market, which can critically improve a fledgling product/company's overall financial viability.

The importance of co-locating design and production capacities is magnified with the prospect of "mass customization" and hyper-localization brought on by evolving 3D printing technology. Under this new manufacturing paradigm, the familiar practice of specialized mono-production transitions to more flexible manufacturing systems capable of producing wider ranges of small-batch products just-in-time and under a single roof. These newer, cleaner manufacturing platforms begin to blur the line between design and production and further reduce the need for warehousing.

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90 Coffin, Sarah L. "Urban Manufacturing in St. Louis: How we understand the small to midsized market." Saint Louis University, Urban Planning and Development Program: School of Social Work, January 2, 2020.

Action Item #: M-2.1	**Prioritize the development of a physical place, such as the Near North Riverfront, Baden (consumer goods), and Mark Twain Neighborhoods where manufacturing innovation and growth is encouraged and well-resourced**
Leader	SLEDP, SLDC
Potential Partners	Planning & Urban Design Agency, St. Louis Makes
Start Time	Year 2
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	Internal
Goal/s	Increase the density and use of industrial areas in targeted areas
Tracking Progress	Density of industrial uses within target areas

Action Item #: M-2.2	**Establish buffers surrounding identified manufacturing districts to address potential land use conflicts and upgrade existing infrastructure within these districts**
Leader	Board of Public Service
Potential Partners	Board of Aldermen, Planning & Urban Design Agency, SLDC
Start Time	Year 2
Duration	5-10 years
Effort to Implement	Medium
Potential Funding	External (e.g., federal transportation grants)
Goal/s	Create land use transitions from core industrial land uses to other, less intensive commercial and mixed uses; make infrastructure upgrades to support current industrial needs, e.g., internet service, water and sewer services, general road network improvements to relieve traffic congestion, etc. (modeled after Chicago's program*), following the Freightway plan
Tracking Progress	Density of industrial uses within target areas

* Industrial Corridor Modernization Initiative. (2019, May 20). City of Chicago Planning and Development. https://www.chicago.gov/city/en/depts/dcd/supp_info/repositioning-chicago-s-industrial-corridors-for-today-s-economy.html

Action Item #: M-2.3	**Determine geographic target areas and policy guidelines for expedited permitting of manufacturing businesses**
Leader	SLDC
Potential Partners	Buildings Dept., Planning & Urban Design Agency
Start Time	Year 2
Duration	6 months
Effort to Implement	Medium
Potential Funding	Internal
Goal/s	Promote manufacturing growth and consolidation of industry into target districts
Tracking Progress	Number of businesses filing for permits in target areas
Action Item #: M-2.4	**Design a system of wraparound services targeted to manufacturers and deliver programing and services for lower middle market (≤$50mil revenue) manufacturing firms**
M-2.4.1	Create and deliver programming that is 80% focused on lower middle market new product development, business development (including channel management) and product management, with the remaining 20% of resources focused on entrepreneur support and new business creation
M-2.4.2	Provide services to guide manufacturers to available business incentives as part of the city's BRE program
M-2.4.3	Provide low interest and high-speed (limited paperwork) loan funds ranging from $20K-$250K
M-2.4.4	Orchestrate supplier-to-business matchmaking and to arrange meet-ups for learning and connecting
M-2.4.5	Recruit existing manufacturers to the new manufacturing district
Leader	St. Louis Makes
Potential Partners	SLDC
Start Time	Year 2
Duration	24+ months
Effort to Implement	High
Potential Funding	Internal and philanthropic sources
Goal/s	Increase in density of industrial districts
Tracking Progress	Growth in revenues and payrolls of manufacturing businesses

Action Item #: M-2.5	**Build on partnerships with colleges and universities in the region plus large manufacturers to promote the creation of an industrial product design program in the city**
M-2.5.1	Develop a classroom competition with area university engineering programs where students will have the opportunity to develop innovative industrial product designs
M-2.5.2	Develop a competitive research grant program for area universities and technical schools to submit proposals to work with large manufacturers to develop new and innovative industrial product designs
Leader	SLDC
Potential Partners	Missouri Enterprise, St. Louis Makes, universities (e.g., Ranken, SLU, UMSL, WashU), manufacturers
Start Time	Year 2
Duration	12+ months
Effort to Implement	High
Potential Funding	Philanthropic sources
Goal/s	Promote innovation in design and development of new manufactured products in St. Louis
Tracking Progress	New manufacturing-related patents filed for new products

Strategy 3 Organize a collective of manufacturers and educators to develop a pro-manufacturing PR campaign geared toward potential future workers

Workforce approaches for urban manufacturing must address three factors. The first is the common difficulty of finding workers, which beyond the tight labor markets that challenges all employers, is generally ascribed to a popular view of manufacturing as dirty and repetitive. As Brookings noted in 2011, "Tackling the workforce predicament [in urban manufacturing] requires confronting a systemic, cultural problem: manufacturing suffers from a poor public image." A second challenge is the continued reliance of small manufacturers on social networks to find new workers, an approach that is not only ineffective, as evidenced by chronic shortages, but exclusionary in the sense that heavy reliance on social networks will tend to replicate the existing demographic characteristics of workers and over the long-term, of owners, as well. The third challenge is the broad range of technical skills needed in urban manufacturing in a single city: the cluster is composed of a large number of small firms with distinctive product lines, production techniques, and skill requirements.

Solving these issues simultaneously will likely require aggregating individual firm attempts to solve the first two issues by creating a collective story about St. Louis small urban manufacturing, work that intermediaries like St. Louis Makes, Ranken Tech, and St. Louis Community College have already started, combined with formal outreach to high schools, community organizations, workforce development intermediaries, etc. There are already models of success—urban areas like Brooklyn have built a hip, youth-oriented national image in part of their embrace of artisan production and small-scale manufacturing. In the case of St. Louis, reasonable costs, land availability, and modest congestion could allow a scaling that eludes denser, higher-cost American cities. Recognition of urban manufacturing as an important economic cluster with growth potential in the city, investments by SLDC in creating internal expertise, and collaboration with existing organizations can likely solve these challenges. Given challenges with recruitment and the economic and moral imperative to provide opportunities across racial and socioeconomic groups, urban manufacturing could also benefit from a common front-door organization that recruits trainees and coordinates relationships with employers.

Action Item #: M-3.1	Establish a STL Manufacturing Alliance in collaboration with STL Makes and organize a Workforce PR working group
Leader	St. Louis Makes, SLDC
Potential Partners	Manufacturers
Start Time	Year 2
Duration	9 months
Effort to Implement	Medium
Potential Funding	Business membership fees
Goal/s	Coordinate the efforts of disparate manufacturing companies to address common workforce needs
Tracking Progress	Activity and commitment of group members

> **"Tackling the workforce predicament [in urban manufacturing] requires confronting a systemic, cultural problem: manufacturing suffers from a poor public image."**

Action Item #: M-3.2	Develop a messaging strategy geared toward high school career counselors and parents of youth to combat outdated stereotypes about manufacturing work and to convey the benefits of a career in manufacturing
Leader	St. Louis Makes
Potential Partners	Ranken Tech, SLATE, St. Louis Public Schools, SLDC
Start Time	Year 2
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	Local or national philanthropy, donated time
Goal/s	Improve public image of urban manufacturing; expand and diversify employees
Tracking Progress	Number of participating businesses, number and diversity of urban manufacturing employees

Action Item #: M-3.3	Expand upon national Manufacturing Day efforts by hosting factory tours for high school students in partnership with the local school districts and community colleges
Leader	SLDC
Potential Partners	St. Louis Community College, St. Louis Makes, St. Louis Public Schools
Start Time	Year 2
Duration	6 months
Effort to Implement	Medium
Potential Funding	Business sponsorships
Goal/s	Ensure that St. Louis is an active participant in Manufacturing Day
Tracking Progress	Number of students attending; number of businesses participating

Action Item #: M-3.4	**Take manufacturing into the classroom by organizing manufacturing guest speaker visits to schools and developing a PR video to distribute to schools and counselors**
Leader	SLDC
Potential Partners	St. Louis Makes, St. Louis Public Schools and Charter schools, manufacturing businesses
Start Time	Years 3-5
Duration	Ongoing
Effort to Implement	High
Potential Funding	Business sponsorships, local or national philanthropy
Goal/s	Increase the reach with the manufacturing message strategy to a broad swath of middle and high school students in the city
Tracking Progress	Number of schools participating, number of businesses participating
Action Item #: M-3.5	**Establish a summer manufacturing camp, such as the Guitar Manufacturing Camp, originally held at Purdue University, where students can learn first-hand about manufacturing while making their own guitars***
Leader	SLDC
Potential Partners	Missouri Works Training, St. Louis Makes, manufacturers, universities
Start Time	Years 3-5
Duration	12 months
Effort to Implement	High
Potential Funding	Local or national philanthropy, federal grants
Goal/s	Build enthusiasm for manufacturing among high school students by providing hands-on experience with product manufacturing; apply learnings from other competitions held in St. Louis, like FIRST Robotics
Tracking Progress	Number of students enrolled, number of businesses participating

* Earl, B. (2012, June 18). Purdue hosts guitar-building camp for high schoolers. The Exponent. https://www.purdueexponent.org/campus/article_e9a6b03e-cffe-57d6-91a3-96666519dba5.html

Strategy 4 Organize workforce training and apprenticeship programs serving city residents to expand the manufacturing workforce in the city

A common, coordinated approach to workforce recruitment must coexist with an individuated approach to training to accommodate the wide range of training needs that exist across urban manufacturers in St. Louis. Solving this may require a combination of public and philanthropic efforts. The State of Missouri has programs that can potentially support customized apprenticeships including Missouri Works Training, which allows firms themselves to determine who will deliver the training. Some of the eight business sectors currently supported by the program have overlap with urban manufacturing (e.g., automotive, advanced manufacturing), and it may be possible to petition to include small-scale manufacturing as a target cluster.[91] In addition, the State recently added an Office of Apprenticeship and Work-Based Learning, which could have interest in supporting training options for urban manufacturing.[92]

There are also models that combine recruitment and training. Chicago-based Jane Addams Resource Corporation (JARC) works with SME manufacturers on creating in-house apprenticeships, as well as with high schools and technical colleges to identify prospective workers. JARC helps design firm-specific apprenticeships that address specific technology needs and provides on-site trainers. The JARC model can be coordinated with social services offerings to address housing, transportation, and other challenges that could undermine completion of training, especially for disadvantaged populations.[93] Another model is YouthBuild, a national organization that works with low-income youth to gain construction-related skills, recruits trainees and helps with soft skill development, as well as working with employers and unions in placing graduates in jobs.[94]

PRECEDENT

JANE ADDAMS RESOURCE CORP.
Chicago, IL

JARC JANE ADDAMS RESOURCE CORPORATION

https://www.jane-addams.org/

91 *Missouri Works Program*. (n.d.). City of St. Louis. https://www.stlouis-mo.gov/government/departments/sldc/economic-development/financing/missouri-works-program.cfm

92 *Summit celebrates Registered Apprenticeship opportunities in Missouri.* (n.d.). [13 November 2019]. Department of Higher Education and Workforce Development. http://www.missouripartnership.com/wp-content/uploads/2016/09/Missouri-Works-Training-Program.pdf

93 Lowe, N. (2015, December 15). Reskilling Urban Manufacturing: Workforce Solutions from the Inside Out. Metropolitcs.org. https://www.metropolitiques.eu/Reskilling-Urban-Manufacturing.html; project interviews and roundtables

94 Project interviews and roundtables

Action Item #: M-4.1	Coordinate with SLATE and area manufacturers to develop a train-to-hire program to better align training with employment opportunities
Leader	SLATE
Potential Partners	St. Louis Makes, manufacturers, SLDC
Start Time	Year 1
Duration	12+ months
Effort to Implement	High
Potential Funding	Federal and state workforce funding
Goal/s	Align training programs with industry needs; ensure that workforce preparation takes into account activities headed for automation and provides technical training that can withstand automation pressures
Tracking Progress	Number of residents trained and hired

Action Item #: M-4.2	Develop a Manufacturing Workforce Committee to focus on strengthening the interactions between industry and education
Leader	SLATE
Potential Partners	St. Louis Makes, St. Louis Public Schools, industry, manufacturers, universities and higher education, SLDC
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	Federal and state workforce funding, local or national philanthropy
Goal/s	Develop strong communication between educators and industry
Tracking Progress	Number of businesses and schools participating in regular meetings; attendance at meetings

Action Item #: M-4.3	Work with local employers, high schools, and community colleges to develop more hands-on curriculum.
Leader	St. Louis Makes, SLDC
Potential Partners	Missouri Works Training, Ranken Tech, SLATE, St. Louis Community College, The Collective Thread
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	Federal/state Departments of Education; local or national philanthropy
Goal/s	Coordinate workforce and apprenticeship programs; build the urban manufacturing workforce; cultivate tactile and technology skills with industrial tech programs
Tracking Progress	Number of trainees and number of trainees placed

Action Item #: M-4.4	Promote the creation of a trade-oriented high school, similar to other specialty career-focused high schools in St. Louis, such as the Collegiate School of Medicine and Bioscience, or the Central Visual and Performing Arts High School
Leader	SLDC
Potential Partners	St. Louis Makes, St. Louis Public Schools
Start Time	Years 3-5
Duration	24 months
Effort to Implement	High
Potential Funding	Local or national philanthropy
Goal/s	Develop a specialty/Charter school focused on preparing students for a career in manufacturing
Tracking Progress	School administrator and manufacturing firm interest and participation

Action Item #: M-4.5	**Encourage a renewed emphasis on applied research in various engineering disciplines among universities, including new materials and robotics**
Leader	SLDC
Potential Partners	Manufacturers, universities
Start Time	Year 2
Duration	12+ months
Effort to Implement	High
Potential Funding	University and industry funding
Goal/s	Enhance the connection between local university engineering programs and industrial application for local companies; work in partnership with local industries that can tap the research and talent resources of universities to improve competitiveness and reinforce their rootedness in the community
Tracking Progress	University and business participation

Strategy 5	Provide programming that includes training, financing and support services to assist in succession planning for small- to mid-sized manufacturers

The market value of urban manufacturing firms in the City of St. Louis is in the billions of dollars and yet, as in most places, succession planning is not always a priority among business owners nor are there strong ecosystem supports in place. Although great data do not exist, surveys and interviews point to broad challenges with securing the next generation of ownership in urban manufacturing. Nationally, a 2019 PWC survey found that less than 20% of family-owned firms have a formal succession plan; locally, interviews with urban manufacturers in St. Louis found they "rarely had succession plans and were generally too small to attract potential buyers as owners approached retirement"

Training programs for new business owners already exist; for example, CET's Square One program has two coursework streams for entrepreneurs. These programs may indirectly support succession planning by providing critical knowledge for new business owners, but they may need to be adapted to (or supplemented by) succession-planning specific information. Furthermore, the value proposition needs to be articulated for existing owners, who may be uninterested in or unwilling to participate in time-intensive trainings. Next-generation ownership models should include traditional as well as cooperative models and employee stock ownership (ESOP) plans.

Action Item #: M-5.1	**Find funding partners and develop a financial incentive to encourage participation in existing training programs, such as the Square One program offered through Cortex and St. Louis Makes**
Leader	SLDC
Potential Partners	Manufacturing Alliance, SLATE, St. Louis Makes
Start Time	Year 2
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	Local or national philanthropy
Goal/s	Lower the financial barriers to participation in Square One training for small entrepreneurial manufacturers
Tracking Progress	Number of manufacturers enrolling and attending courses
Action Item #: M-5.2	**Develop a program to help organize the establishment of Employee Stock Ownership Programs or other mechanisms for aiding in the transfer of ownership from retiring owners to a more equitable broad-based ownership by employees**
Leader	SLDC
Potential Partners	Bar Association of Metropolitan St. Louis, Missouri Enterprise, St. Louis Makes
Start Time	Year 2
Duration	18 months
Effort to Implement	High
Potential Funding	Local or national philanthropy
Goal/s	Diversify ownership of small local manufacturing firms, and ensure successful transition of ownership for retiring business owners
Tracking Progress	Growth of employee and minority ownership of city manufacturing businesses

Action Item #: M-5.3	**Organize and deliver curriculum on business valuation/succession models, and provide succession planning services, including assistance around purchasing and consolidating manufacturing companies around the Midwest**
Leader	St. Louis Makes
Potential Partners	Bar Association of Metropolitan St. Louis, Missouri Enterprise, Ranken Tech, SLATE, SLDC
Start Time	Year 1
Duration	Ongoing
Effort to Implement	High
Potential Funding	Philanthropic then fee-for-service; donated time and space
Goal/s	Increase number of urban manufacturing firms with solid business valuation; increase business transitions; increase diversity of business ownership
Tracking Progress	Number of participating businesses, diversity of next generation owners


T-REX
T-REX
LAMMERT
AIA
T-REX

Software Tech

Cluster Vision

Dominance in a technology segment does not assure large-scale job creation or anything other than meager opportunity creation for workers without advanced degrees. The development of a robust software tech cluster aims to ensure that technology segments in which St. Louis is or can be on the cutting edge—e.g., agtech, cybersecurity, financial services, geospatial, healthcare innovation—will translate into broad-based prosperity. By coordinating the city's and region's already considerable workforce, training, and education assets, especially in outreach and training efforts in disadvantaged communities, the software tech cluster can help generates thousands of middle-wage jobs that can be filled by a workforce that reflects the city's deep and diverse talent base. The development of the software tech workforce can support broader citywide and regional business attraction and retention efforts, and these efforts go hand-in-hand with other efforts to support the city's technological capacity (e.g., broadband capabilities).

Figure ST-1. Software tech occupation cluster definition

Occupation	U.S. Jobs 2018 ('000)	Job Growth '10-'18
Software Developers, Applications	903	81%
Computer User Support Specialists	631	44%
Computer Systems Analysts	588	19%
Software Developers, Systems Software	405	7%
Computer + Information Systems Managers	391	36%
Network + Computer Systems Administrators	366	10%
Computer Programmers	230	-31%
Computer Network Support Specialists	181	29%
Computer Network Architects	153	43%
Web Developers	127	59%
Database Administrators	110	6%
Information Security Analysts	108	92%
Computer Hardware Engineers	61	-9%
Computer + Information Research Scientists	30	21%
Total Software Tech	**4,286**	**28%**
Total Economy	**144,733**	**14%**

Source: BLS OES; Mass Economics analysis
Note: These estimates are based on occupation data and include public sector employment

Cluster Overview

"Software tech" is an occupational cluster that captures the full spectrum of software development and maintenance activities from programming to development to testing to administration and maintenance to customer support. There is no standard definition of software tech and its activities cut across industries and occupations, making it difficult to size the cluster. Using the definition presented in Figure ST-1, we estimate that across the U.S., software tech employs about 4.3 million people across 14 occupations. From 2010 to 2018, jobs in software tech have grown by about 3.1% per year, almost twice as fast as the rest of the national economy (1.6%).

With the continuation of a decades-long shift from mechanical to digital processes and software serving as the foundational element of key new technologies (AI, robotics, machine learning), strong growth in software tech is expected to continue.[95] The U.S. Bureau of Labor Statistics projects that over the next decade, jobs in software tech occupations will grow by 12.2%, much faster than overall national job growth rate of 5.2%. Beyond individual occupations, software skills in general are shaping job content across occupations with 83% of jobs now considering programming skills somewhat to extremely important, up from 75% in 2010.[96] As programming and software skills are increasingly demanded across all occupations, it is almost impossible to over-train a workforce in these skills.

Software tech is a critical opportunity for the City of St. Louis for three reasons in addition to its expected growth: the cluster creates relatively broad-based opportunity; software tech skills are critical to a range of the city's and region's core industries and clusters; and there is significant potential to better organize software tech—it is currently not a target for any of the generalist or cluster-focused EDOs—and leverage new organizational capacity to support attraction and expansion efforts in the city.

95 BLS OES; BLS Employment Projections Program; Mass Economics analysis

96 O*NET Databases v24.1 (Nov 2019) and v15.0 (July 2010); Mass Economics analysis. Note that the average and median importance score for programming increased 8.7% between 2010 and 2019.

IN GENERAL, WORKERS IN SOFTWARE TECH HAVE HIGHER LEVELS OF EDUCATION BUT ABOUT 30% OF TODAY'S SOFTWARE TECH JOBS REQUIRE NO MORE THAN A TWO-YEAR DEGREE.

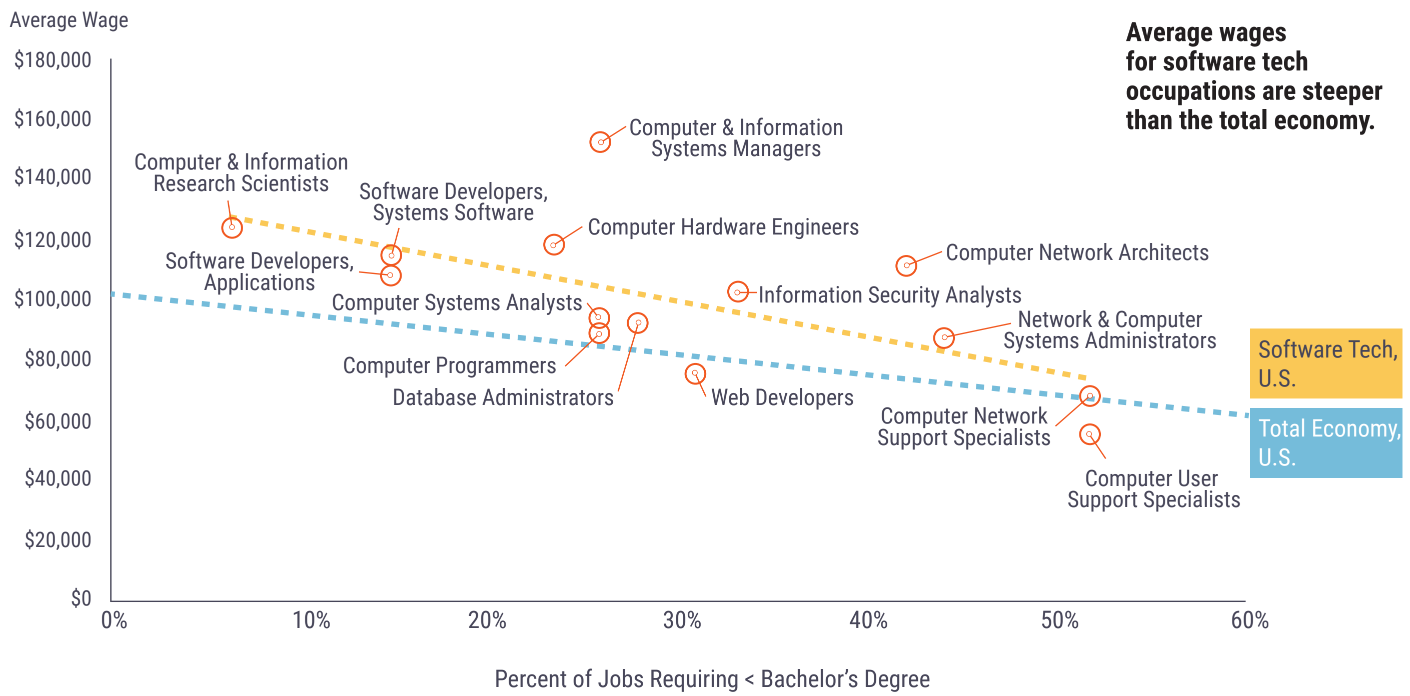
In general, workers in software tech have higher levels of education but about 30% of today's software tech jobs require no more than a two-year degree. In four of the fourteen occupations, over 40% of workers do not have a four-year degree; collectively, these occupations have grown across the region at almost 20% since 2010. One industry veteran noted, "The best programmers at my company I taught straight out of high school…you can give an 18-year-old a book and let them Google stuff and they solve problems for twenty years."[97] There is also growing interest in opening opportunities to workers without technical degrees and even without any kind of four-year degree. LaunchCode, a national training program founded and still based in St. Louis, uses 16- and 20-week curricula to prepare people without computer science training for successful careers in software and reports that about 45% of participants do not have a four-year degree and almost 10% did not graduate from high school.[98] LaunchCode also provides growth opportunities for junior software developers through programs like the Tech Leadership Fellows, which offers mentorship, leadership, and other professional development skills.[99] In addition to offering career paths for workers without four-year degrees, the cluster pays higher than average wages even in occupations with lower average educational requirements (see Figure ST-2).

97 Project interviews and roundtables

98 *LaunchCode Annual Report*. (2016). https://www.launchcode.org/annualreport/2016

99 Become a Tech Leadership Fellow. (n.d.). LaunchCode. https://www.launchcode.org/leadership-program#:~:text=LaunchCode%20Tech%20Leadership%20Fellows%20guide,their%20own%20professional%20development%20goals.

Figure ST-2. Average wage versus educational requirements, U.S., 2018



Source: BLS OES; BLS Employment Projections Program; Mass Economics analysis

Software tech is foundational to some key city and regional cluster strengths. The region's finance and fintech clusters have been at the forefront of software processing technologies for decades: Advantage Capital was an early (2004) investor in FleetCor Technologies, a billion-dollar publicly traded company that provides fleet card processing software to the trucking industry; O'Fallon is home to one of MasterCard's five global tech hubs, with 3,000 employees working on software systems and "making sure payments around the globe are safe and simple for all" of the card's users;[100] and Square, the mobile payment platform and one of the best-known companies in fintech, was developed by two St. Louis natives – and while based in Silicon Valley, it has a significant presence at Cortex and is building a downtown office with space for up to 1,400 employees.[101] The primacy of software activities in the city's and region's finance sector is evident in Figure 3 which shows the region's securities, commodities, funds, and trusts industry has 2.3 times more software workers than the national industry average and non-depository credit and related activities, which includes clearing credit card transactions, has just over twice (2.1) as many.

However, the software tech story goes well beyond the finance sector. St. Louis is home to World Wide Technology, headquartered in Maryland Heights, which provides IT services and generated over $11 billion in sales in 2018.[102] World Wide Technology also owns Asynchrony Labs, a tech firm located downtown.[103] Three other industry groups have at least 500 software tech employees and well-above average utilization of software skills: automotive rental and leasing (likely because of Enterprise headquarters activities) employs software tech workers at 43 times the national industry average; agricultural chemicals employs 37 times more; and aircraft and parts, almost five times (4.8) more. Hospitals, too, demand software tech occupations and employ 1.8K people in software tech in the region. Overall, software tech employment is about 15% higher than we would expect in a U.S. regional economy the size of the St. Louis MSA. (See Figure ST-3.)

"Software and back office are things that St. louis is good at and they create mid-tier salaried jobs."

100 Noto, A. (2018, September 13). *Mastercard teams with Microsoft on payments platform*. New York Business Journal. https://www.bizjournals.com/newyork/news/2018/09/13/mastercard-teams-with-microsoft-on-cross-border.html; Faust, V. (2017, December 18). MasterCard's tech center in O'Fallon ready to handle large volume of Christmas purchases. Fox2 Now. https://fox2now.com/2017/12/18/mastercards-tech-center-in-ofallon-ready-to-handle-large-volume-of-christmas-purchases/

101 Stevenson, S. (2019, August 5). *5 things to know about Square's move to downtown St. Louis*. https://www.stlmag.com/api/content/89cc8b7e-b7a2-11e9-a543-12f1225286c6/

102 *World Wide Technology.* (n.d.). Forbes. Retrieved from https://www.forbes.com/companies/world-wide-technology/

103 *WWT Acquires Agile Software Development Consulting Firm Asynchrony.* (n.d.). Retrieved from https://www.wwt.com/press-release/wwt-acquires-agile-software-development-consulting-firm-asynchrony

Figure ST-3. Software tech occupations by industry in the St. Louis region vs. U.S.

Industry	St. Louis Region Emp	% of STL Region Software Tech Cluster	% of U.S. Software Tech Cluster	St. Louis Region : U.S. Ratio
Computer systems design and related services	10,600	24%	31%	0.8
Securities, commodities, funds, trusts, and other financial investments	2,100	5%	2%	2.3
Hospitals	1,800	4%	3%	1.5
Aircraft and parts	1,700	4%	1%	4.8
Wired telecommunications carriers	1,600	4%	2%	2.0
Insurance carriers and related activities	1,500	3%	4%	0.9
Management, scientific and technical consulting services	1,500	3%	3%	1.2
Banking and related activities	1,500	3%	3%	1.1
Colleges, universities, and professional schools, including junior colleges	1,300	3%	4%	0.9
Non-depository credit and related activities	1,300	3%	1%	2.1
Automotive equipment rental and leasing	1,100	3%	0%	43.1
Business support services	630	1%	1%	1.9
Architectural, engineering, and related services	580	1%	2%	0.7
National security and international affairs	570	1%	1%	1.0
Elementary and secondary schools	530	1%	1%	0.9
Agricultural chemicals	510	1%	0%	37.5
Telecommunications, except wired telecommunications carriers	490	1%	1%	0.9
Construction	480	1%	1%	1.9
Other health care services	400	1%	1%	1.3
Mail-order houses	390	1%	0%	5.8

Source: ACS-IPUMS 2017 5-year release; Mass Economics analysis

Software tech will be critical for realizing the full economic value of the new national federal geospatial N2W site in North City, the design of which will be part of an effort to create stronger bridges between the work of the 3,100 staffers at N2W and the private sector; and for growing cybersecurity jobs, which will benefit from proximity to N2W. Already, T-REX has established a Geospatial Innovation Center, known as Geosaurus. Leaders at Cortex have identified cybersecurity as a significant growth opportunity and expect to launch a Global Center for Cybersecurity at Cortex and collaborate with SLU's Geospatial Institute on a geospatial consortium.[104]

Despite the city's and region's immense strengths and opportunities in the software tech cluster, it is trending in the wrong direction in terms of both overall growth and creation of broad-based opportunity. As shown in Figure ST-4, the number of jobs in software tech nationally increased by 28% between 2010 and 2018, growth in the region was only 8%, meaning the region lost out on about 9,000 potential software tech jobs. This performance is even more disappointing when we consider the implications for inclusion: across the U.S., job growth was more or less identical across educational levels of workers (high school or less, some college, and bachelors or advanced degree). Job growth in the St. Louis region greatly underperformed in each of these categories.

Although it is difficult to measure occupations below the regional level, MERIC-produced estimates suggest that performance in the City of St. Louis itself was even weaker, with software tech employment growing by only 3% since 2010.[105] Moreover, these data also suggest that the only growth that occurred in the city was for occupations that require at least a four-year degree.(See Figure ST-4.)

DESPITE THE CITY'S AND REGION'S IMMENSE STRENGTH AND OPPORTUNITIES IN THE SOFTWARE TECH CLUSTER, IT IS TRENDING IN THE WRONG DIRECTION IN TERMS OF BOTH OVERALL GROWTH AND CREATION OF BROAD-BASED OPPORTUNITY.

The dramatically worse performance of the City of St. Louis relative to the region, as well as the industries in which software tech occupations are concentrated in the region, suggest that St. Louis and the region are highly competitive in software tech that is embedded in larger corporate entities, but less competitive in the types of small- and mid-sized software firms that tend to be drawn to urban areas. This hypothesis is consistent with concerns among local experts that there is not enough reasonably-priced space for mid-sized tech firms in the city.[106]

104 Ruff, C. (2019, December 13). C*ortex CEO Dennis Lower Reflects On A Decade Of Building St. Louis Into A Tech Hub.* St. Louis Public Radio. https://news.stlpublicradio.org/post/cortex-ceo-dennis-lower-reflects-decade-building-st-louis-tech-hub#stream/0; Project interviews and roundtables

105 The Missouri Economic Research and Information Center (MERIC) produces Occupational Employment and Wage Estimates (OES) data for sub-regional geographies – including the City of St. Louis data, utilized here – by using the BLS-OES micro data and the Local Employment and Wage Information System (LEWIS) program. These OES micro data are the same back-end data utilized by the BLS to create the published national, state, and regional estimates and are "apples to apples," with the BLS published numbers according to MERIC staffers.

106 Project interviews and roundtables

Figure ST-4. Growth in software tech jobs by geography, 2010-2018

	Total	<=High School	Some College	Bachelors/+
U.S.	28%	27%	27%	28%
MSA	8%	12%	11%	7%
City of St. Louis (est.)	3%	-5%	-4%	7%

Source: BLS OES; BLS Employment Projections Program; MO Economic Research and Information Center; Mass Economics analysis

Cluster Growth Opportunities

Software tech is a critical for St. Louis because, as an occupational cluster, it stands to leverage the industry strengths of the city and region to provide middle- to high-wage jobs across a range of skillsets. (See Figure ST-5.) While St. Louis may be at the forefront of advancements in certain clusters (e.g., geospatial), this position doesn't guarantee that new jobs will be generated across the spectrum of worker skills and abilities. The promise of software tech is that support jobs can be created across tech specializations – such as fintech, geospatial, and agtech, to name a few. If developed correctly, a robust software tech cluster can translate into a large number of middle-wage jobs, including for people without a bachelor's degree.

Multiple specific strategies for software tech growth are presented below; each of these falls under a single meta-strategy, namely recognizing software tech as an occupational cluster that cuts across key industry clusters—aerospace, agtech, consumer services, cybersecurity, finance, geospatial—and must be organized as such. Absent such organization, it is difficult to see how the scale of the workforce needed to support the potential growth of the individual clusters—aerospace, agtech, etc.—will be developed.

Using lessons from successful cases nationally, we know that cluster organizations have to be industry-focused and expert driven; utilize quantitative and qualitative information to understand the cluster; and have a focused (and limited) set of strategic priorities.[107] Based on the software tech activities and growth trajectory in St. Louis and the broader region, a software tech organization must work to: define the cluster; identify the current constraints behind the anemic growth in the city; map the full range of new growth opportunities; identify the scale and type of workforce skills needed to realize these opportunities; coordinate workforce development and training resources to meet these demands; and establish feedback loops for employers and industry experts to constantly refine curricula to meet changing skill requirements.

The establishment of a cluster organization and cluster identity will also help with talent attraction. Mid-sized cities and regions often suffer in talent recruitment because of what is seen as limited career growth options and it is true that in general, the largest urban economies offer richer, deeper career pathway options than smaller metros. However, understanding and presenting St. Louis software tech as a cluster—and one that as recently as 2010 was a size that we would expect in a metropolitan area that is 30% bigger—will help address some of these recruitment issues.

In terms of cluster funding, successful clusters tend to bring in resources from local, state, and federal public sector, as well as corporate, philanthropic, and sometimes university sources and over time, rely on a diversified set of funding. In the case of Software Tech, the growth and inclusion opportunity should be sufficient to fund the first few years with philanthropic dollars and perhaps federal funding. (State funding options seem limited but worth exploring.) Within about 18-24 months, the value of the cluster to the corporate sector should have been made clear; at that point, the cluster should shift to a diversified funding model, with strong reliance on either corporate donations or a fee-for-service model that monetizes placements and hiring.

Figure ST-5. Overview of software tech opportunity

Measure	Software Tech Cluster	Total City Economy
Jobs, 2018 (K)	8.9	227.3
Location Quotient (LQ)	1.3	n/a
Projected Additional Jobs, 2028	1,100	13,200
Jobs Requiring Less than a Bachelor's Degree (%)	29%	64%
Average Wage ($K)	$93.2	$54.7
Geography	Central West End, Clayton-Sarah, Downtown Core, Midtown, NGA Area, Midtown	n/a
Examples of Types of Jobs	Computer and information systems managers and research scientists, computer systems and information security analysts, computer programmers, software and web developers, database administrators	n/a

Source: BLS OES; Mass Economics analysis
Note: These estimates are based on occupation data and include public sector employment

107 Zeuli, K., O'Shea, K., and Nijhuis, A. (2017). *Building Strong Clusters for Strong Urban Economies: Insights for City Leaders from Four Case Studies in the U.S. Initiative for a Competitive Inner City.* http://icic.org/wp-content/uploads/2017/06/JPMC-Cluster-Report_Building-Strong-Clusters_FINAL_v2.pdf; Donahue, R., Parilla, J., and McDearman, B. (2018). *Rethinking Cluster Initiatives* (p. 52). Metropolitan Policy Program at Brookings. https://www.brookings.edu/wp-content/uploads/2018/07/201807_Brookings-Metro_Rethinking-Clusters-Initiatives_Full-report-final.pdf

Strategies and Action Steps

Strategy 1	Equip SLDC to support the software tech cluster in the city

In order to provide an overview of the cluster and identify potential members of the cluster advisory committee, SLDC should compile an overview baseline assessment of employment and occupation trends, major employers, workforce, training, and education (WTE) providers, potential funders, etc. By creating a coherent cluster definition and sizing the current economic impact of the cluster, SLDC can draw attention to the opportunity and begin to understand the challenges that are slowing cluster growth.

Longer term, the focus of the software tech cluster organization, tentatively titled, TechSTL, will be on understanding and coordinating the demand (employer) and supply (workforce, education, and training providers) sides. In recruiting potential advisory committee members, SLDC should make clear that data sharing will be strongly encouraged as part of cluster membership, including requests for employers to share projected workforce needs and for WTE providers to share enrollment, completion, and placement information. While data sharing need not be a mandatory requirement, as it could deter key employers from participating, that it is considered a recommended contribution to TechSTL should be made clear from initial outreach.

Action Item #: ST-1.1	**Develop internal expertise around the software tech cluster, organize the cluster and recruit software tech advisory committee, and hold software tech cluster kick-off meeting**
Leader	SLDC
Potential Partners	Claim Academy, Cultivation Capital, Danforth Plant Science Center, LaunchCode, SixThirty, SLEDP, SLU, WashU, diverse representation from corporates (e.g., Square, Microsoft)
Start Time	Year 1
Duration	3-12 months
Effort to Implement	High
Potential Funding	TBD
Goal/s	Establish knowledge base around software tech, leveraging ongoing city and regional initiatives (e.g., St. Louis Metro Economic Development Strategy); prepare for future cluster profile development; enable productive convenings of actors that support software tech; receive feedback on cluster trends, cluster challenges, cluster opportunities; postulate credible hypotheses regarding cluster slow-down since 2010; update cluster profile
Tracking Progress	Staff dedicated to developing internal software tech expertise; representation from diverse actors; attendance at convenings; number of first-choice candidates who serve; advisory committee engagement (attendance at meetings, etc.); amount and quality of information on trends, challenges, and opportunities

Action Item #: ST-1.2	Develop profile of the St. Louis software tech cluster, identifying and profiling small-, medium- and large firms that have demand for software tech services or can provide these services
Leader	SLDC
Potential Partners	Claim Academy, Cultivation Capital, LaunchCode, SixThirty, corporates (e.g., Square, Microsoft)
Start Time	Year 1
Duration	2-3 months
Effort to Implement	Medium
Potential Funding	TBD
Goal/s	Completed presentation
Tracking Progress	Completed presentation

Action Item #: ST-1.3	Hire dedicated software tech expert at SLDC, focused on second-stage businesses and real estate
Leader	SLDC
Potential Partners	Software tech advisory committee
Start Time	Year 1
Duration	1-3 months
Effort to Implement	High
Potential Funding	Internal
Goal/s	Hire person with start-up/second-stage experience and real estate familiarity
Tracking Progress	Quality and timing of hire

Action Item #: ST-1.4	**Incorporate software tech into the business retention and expansion program**
Leader	SLDC
Potential Partners	SLEDP
Start Time	Year 2
Duration	Ongoing
Effort to Implement	Low
Potential Funding	Internal
Goal/s	Aim to meet with companies that have 100+ employees at least annually, and for those with 50 to 100 employees bi-annually, and those with less than 50 employees once every three years; gain awareness of current and future site and building needs
Tracking Progress	BRE survey results inputted into CRM system

Action Item #: ST-1.5	**Under the direction of the new SLDC hire, identify flexible, scalable real estate product with the necessary infrastructures that can support cluster growth**
Leader	SLDC
Potential Partners	LRA, SLEDP
Start Time	Year 2
Duration	Ongoing
Effort to Implement	Low
Potential Funding	TBD
Goal/s	Develop and regularly maintain a database of available real estate options available for software tech businesses
Tracking Progress	Quality and utilization of inventory, software companies matched with available spaces

Strategy 2

Coordinate with workforce, training, and education (WTE) providers to size projected demand in the cluster, determine roles, establish channels of communication, and maintain accountability in training workers to meet short- and long-term software tech workforce demand

Software Tech is comprised of 14 occupations related to computer programming, systems, and software. These occupations span a range of industries, serving both primary and support functions. The widespread relevance of Software Tech occupations – and the fact that the cluster includes both jobs that are known today, as well as jobs that will be developed in the future – means that it is no small feat to project potential demand for workers and the skillsets that might be required. However, growing the cluster in St. Louis and the region will require reasonably accurate short-term (0-2 years) and medium-term (2-5 years) forecasts. An added challenge comes from the fact that the prospective workforce includes not only new entrants to the cluster, but also the current Software Tech workforce that may be in need of upskilling.[108]

There are multiple methods for developing demand forecasts based on the willingness of employers, especially major employers, information on projected local hiring and characteristics of current workforce. Although firms are generally reluctant to share any information related to competitive position, cluster organizations have been successful in getting firms to share information under the proviso that demand projections would aggregate information and not reveal data from individual firms. Processes for creating such projects have been developed by local and national organizations, e.g., the U.S. Chamber of Commerce's Talent Pipeline Management program. Absent willingness of firms to share information, cluster groups can utilize various local and national data sources (e.g., Burning Glass, federal industry and occupation data) to create projections and monitor demand conditions.

There is potential for significant short-term equity and efficiency gains from better coordination of the WTE resources related to software tech. Currently, each of the major training programs recruits and assesses independently, creating relatively high time and information barriers for many would-be workers in software tech and uneven utilization of WTE resources, with some programs chronically at capacity or over-subscribed and other programs that are underutilized. These inefficiencies, we suspect, impose the greatest harm on would-be workers with lower access to financial resources or more day-to-day demands on their time and resources.

This strategy must also include a coordinated effort to secure better outcomes for disadvantaged populations in Software Tech: 1) setting targets for enrollment, graduation, placement, and retention for women, people of color, and residents of low-income communities; 2) developing and disseminating best practices for on-boarding workers from these communities; and 3) by providing referrals and access points to wraparound services in the training and early employment phases.

A common digital portal and information sharing across WTE providers will also be a critical first step in tracking demand, utilization, completion, and system capacity and setting collective training targets for different occupations and skill sets. Over the medium-term, coordination across the WTEs can be used to identify and address capacity gaps that are slowing software cluster growth in the city and region.

108 Project interviews and roundtables

Action Item #: ST-2.1	Develop Software Tech working group of business, education, philanthropic and government leaders and establish goals, division of work, regular meeting schedule and accountability structure for the partnership
Leader	SLDC
Potential Partners	Claim Academy, Family and Workforce Centers of America, LaunchCode, NPower St. Louis, public schools and community colleges
Start Time	Year 2
Duration	2-3 months
Effort to Implement	Medium
Potential Funding	Internal sources
Goal/s	Agile, active working group that regularly meets and participates in solving problems related to workforce needs in the software tech industry cluster; initial coordination and information sharing agreements; creation of common digital portal
Tracking Progress	Number and diversity of WTE participants, depth of coordination and information sharing; functionality and timing of website completion

Action Item #: ST-2.2	Collaborate with St. Louis Community College to conduct regional demand study estimating short- and long-term software tech workforce demand
Leader	SLDC
Potential Partners	St. Louis Community College
Start Time	Year 2
Duration	9 months
Effort to Implement	Medium
Potential Funding	Local philanthropy; federal funding (e.g., US EDA i6 grant)
Goal/s	10-15 slide deck on method, rationale, data requirements, etc.; short-term (0-2 years) and medium-term software tech worker demand projections by occupation and, if possible, industry; 10-12 slide summary deck
Tracking Progress	Amount of employer data in methods; consensus on methods to be used; completion time of project

Action Item #: ST-2.3	**Create a common application portal for training programs**
Leader	SLDC
Potential Partners	Claim Academy, Family and Workforce Centers of America, LaunchCode, NPower St. Louis, public schools and community colleges (including St. Louis Community College)
Start Time	Year 2
Duration	6-12 months
Effort to Implement	Medium
Potential Funding	Local philanthropy
Goal/s	Streamline application processes so that overflow applicants can be absorbed by other programs
Tracking Progress	Presence of a common application portal; number of citywide (or regionwide) applicants ultimately enrolled in training programs

Strategy 3	Formalize a software tech cluster organization, TechSTL

Substantial cluster-building work—in the form of strategies 1 and 2—will have been completed in the first two years of the initiative and a strong understanding of the leaders, on both the employer and WTE sides, will have emerged. At this point, the software cluster initiative should be formalized, tentatively under the name TechSTL, and spun out of SLDC as a stand-alone initiative to focus on continually improving systems for workforce demand and supply projections; develop strategies to meet existing or emerging WTE system capacity gaps; and integrate TechSTL with business attraction efforts.

Action Item #: ST-3.1	**Determine partners and leadership structure for TechSTL**
Leader	SLDC
Potential Partners	Cortex, ITEN, software tech advisory committee, T-REX, Venture Café
Start Time	Year 1
Duration	6 months
Effort to Implement	Medium
Potential Funding	N/A
Goal/s	Strong, standalone organization with a strong board and operational capacity of a BioSTL
Tracking Progress	Bylaws of a formalized cluster organization
Action Item #: ST-3.2	**Determine 5-year budget and funding to launch TechSTL**
Leader	SLDC
Potential Partners	Cortex, software tech advisory committee, T-REX, Venture Café
Start Time	Years 2
Duration	6 months
Effort to Implement	Medium
Potential Funding	Corporate donations or earned revenue; pro bono legal services
Goal/s	Establish a budget and funding sources
Tracking Progress	Identification and security of funding

Action Item #: ST-3.3	Formally launch independent TechSTL organization
Leader	SLDC
Potential Partners	Cortex, software tech advisory committee, T-REX, Venture Café
Start Time	Years 3-5
Duration	6 months
Effort to Implement	Medium
Potential Funding	Corporate donations or earned revenue; pro bono legal services
Goal/s	Strong, standalone organization with a strong board and operational capacity of a BioSTL
Tracking Progress	Presence of a formalized cluster organization

SOFTWARE TECH IS CRITICAL FOR ST. LOUIS BECAUSE, AS AN OCCUPATIONAL CLUSTER, IT STANDS TO LEVERAGE THE INDUSTRY STRENGTHS OF THE CITY AND REGION TO PROVIDE MIDDLE- TO HIGH-WAGE JOBS ACROSS A RANGE OF SKILLSETS.

Source: Venture Café St. Louis

B2B

Cluster Vision

A vibrant business-to-business cluster (B2B) in the City of St. Louis will provide the rich support services sought after by entrepreneurs while creating new entrepreneurship and job opportunities for the residents of St. Louis. Today, the B2B cluster in the city is about 20% smaller than we would expect given the amount of economic activity, with white collar-type support activities weaker than more blue-collar activities. With understanding of the cluster's importance and targeted growth strategies, St. Louis can capture its proportionate share of future regional B2B growth, adding thousands of jobs and supporting resident opportunity and revenue generation within the city. By explicitly supporting existing and would-be minority- and women-owned entrepreneurs in the B2B space, cluster growth can help close the racial gaps in business ownership and revenue and middle-wage job holding.

Cluster Overview

The "business-to-business" (B2B) cluster is composed of firms that provide a broad range of support activities to businesses (as opposed to consumers, as B2C firms like groceries and daycares do). Clients are often anchor institutions or large, publicly traded firms that sell specialized goods and services in national and global markets, while B2B firms themselves are often small or mid-sized, privately held entities. Unlike specialized suppliers that are part of one or a small number of specific national or global supply chains—say, makers of parts for airplane engines—B2B firms often provide somewhat standard products and services across a range of clients in a trade area no bigger than a multi-county metropolitan area. Because of these demand and locational patterns, B2B firms are present in all local economies but often take on distinctive characteristics based on the dominant traded industries in the metropolitan economy in which they operate.

B2B firms can engage in physical (e.g., product assembly, repair, storage, transport) or digital/ managerial activities like payroll support, data services, and staffing. In the physical or "blue-collar" realm, B2B activities can take place off-site at the location of the client (e.g., facilities maintenance), on-site at the B2B firm itself (e.g., wholesaling), or a combination (e.g., repair services). In general, B2B activities in the digital-managerial or "white-collar" realm take place at the B2B firm. (See Figure B2B-1.)

B2B has been growing for decades as once large, vertically integrated firms continue to outsource functions from catering and facilities maintenance, to data services and logistics. Since 2010, employment in B2B industries across the U.S. has grown by 21%, 1.2 times the rate of total U.S. employment. B2B is expected to grow in the next decade, as well, with growth projected at about the same rate as the rest of the U.S. economy (8%) with projected growth of 5% in blue-collar on-site, 10% in blue-collar off-site, and 10% in white-collar B2B sub-clusters.[109]

The B2B cluster is a substantial—but somewhat underperforming—contributor to job creation and entrepreneurship in the City of St. Louis. Overall, the B2B cluster accounts for over 24.7K St. Louis jobs, about one in eight of the jobs in the city, and over $1.1B in wages and because of high entrepreneurship rates, significant owner wealth creation. There is, however, room for growth: the cluster's location quotient (LQ) in the City of St. Louis is only 0.8, meaning there are 20% fewer jobs in B2B than we would expect for an American city of this size. (See Figure B2B-2.) LQs for the Blue Collar B2B On-Site and White Collar B2B sub-clusters are both low (0.7 and 0.6, respectively) in the city

109 QCEW/UDP, 2010-2018; BLS Employment Projections Program; Mass Economics analysis

Figure B2B-1. B2B sub-clusters

Sub-Cluster	Segment
Blue Collar B2B Off-Site	Facilities Management Local Transportation and Logistics Local Trucking Other Business Services Repair and Servicing Waste
Blue Collar B2B On-Site	Rental and Leasing Warehousing and Storage Wholesale – Auto Wholesale – Construction Wholesale – Consumer and Business Wholesale – Energy/Chemical Wholesale – Food Wholesale – Healthcare Wholesale – Other Industrial Wholesale – Support
White Collar B2B	HR Services Professional Services Real Estate

while Blue Collar B2B Off-Site sub-cluster—which includes facilities management, repair and servicing, and local transportation and logistics—has an LQ of just over 1 (1.04).[110]

In addition to the supports it provides for other local businesses and the significant jobs it generates, the B2B cluster is also critical for creating broad-based opportunity. The cluster routinely provides middle-wage jobs for workers without college degrees: the Blue Collar sub-clusters offers $45.8K average wages in the city and 47% of jobs accessible to workers with no more than a high school diploma, and the White Collar sub-cluster offers $47.5K average wages and 36% of jobs accessible to workers with no more than a high school diploma. (See Figure B2B-3.) The B2B cluster has also historically created important opportunities for minority- and women-owned businesses (MWBEs), accounting for 32% of total MBE revenue and 34% of total WBE revenue.[111]

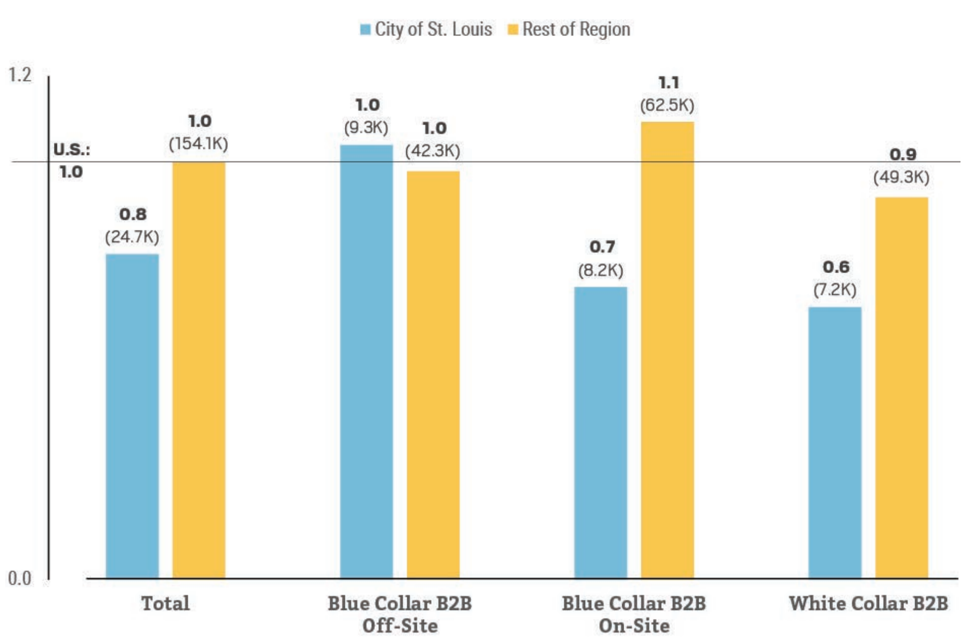
Given the importance of B2B to inclusive prosperity in St. Louis, it is unfortunate that cluster growth in the post-recession period has trailed the rest of the region and the U.S. Since 2010, B2B cluster employment has grown only 1.5% in the City of St. Louis compared 18% in the rest of the region and 21% nationally. (See Figure B2B-4.) The divergence in growth is most pronounced in Blue Collar B2B Off-Site, which declined by 4% in the city while growing 20% nationally. This poor performance was driven by declines in the Facilities Management (-340 jobs, -5%), Waste (-140 jobs, -20%), and Local Transportation and Logistics (-130 jobs, -54%) segments, all of which grew by at least 20% nationally. Both the Other Business Services and Repair and Servicing segments grew in the city, with the latter segment's growth actually surpassing the U.S. and rest of region – growing by over 30% compared to the U.S.'s 6%. The Blue Collar B2B On-Site sub-cluster also declined in the city (-5%) while growing 15% in the U.S. Six of the ten segments lost at least 100 jobs (various wholesaling segments and the rental and leasing segment) but Warehousing and Storage and Wholesale – Healthcare both added over 100 jobs, with the latter growing by almost 380% since 2010. The City of St. Louis was most competitive in White Collar B2B activities, and while it underperformed compared to the U.S., it grew at a rate comparable to the rest of the region. Within the sub-cluster, the Real Estate segment declined by 10% but HR Services grew by 33% (+890 jobs) and Professional Services grew by 40% (+510 jobs) – over 2X the U.S. rate. Had the B2B cluster overall grown at U.S. rates from 2010 to 2018, the city would have an additional 4.7K jobs in 2018.

THE B2B CLUSTER IS CRITICAL FOR CREATING BROAD-BASED OPPORTUNITY AND ROUTINELY PROVIDES MIDDLE-WAGE JOBS FOR WORKERS WITHOUT COLLEGE DEGREES.

110 QCEW/UDP, 2018; Mass Economics analysis

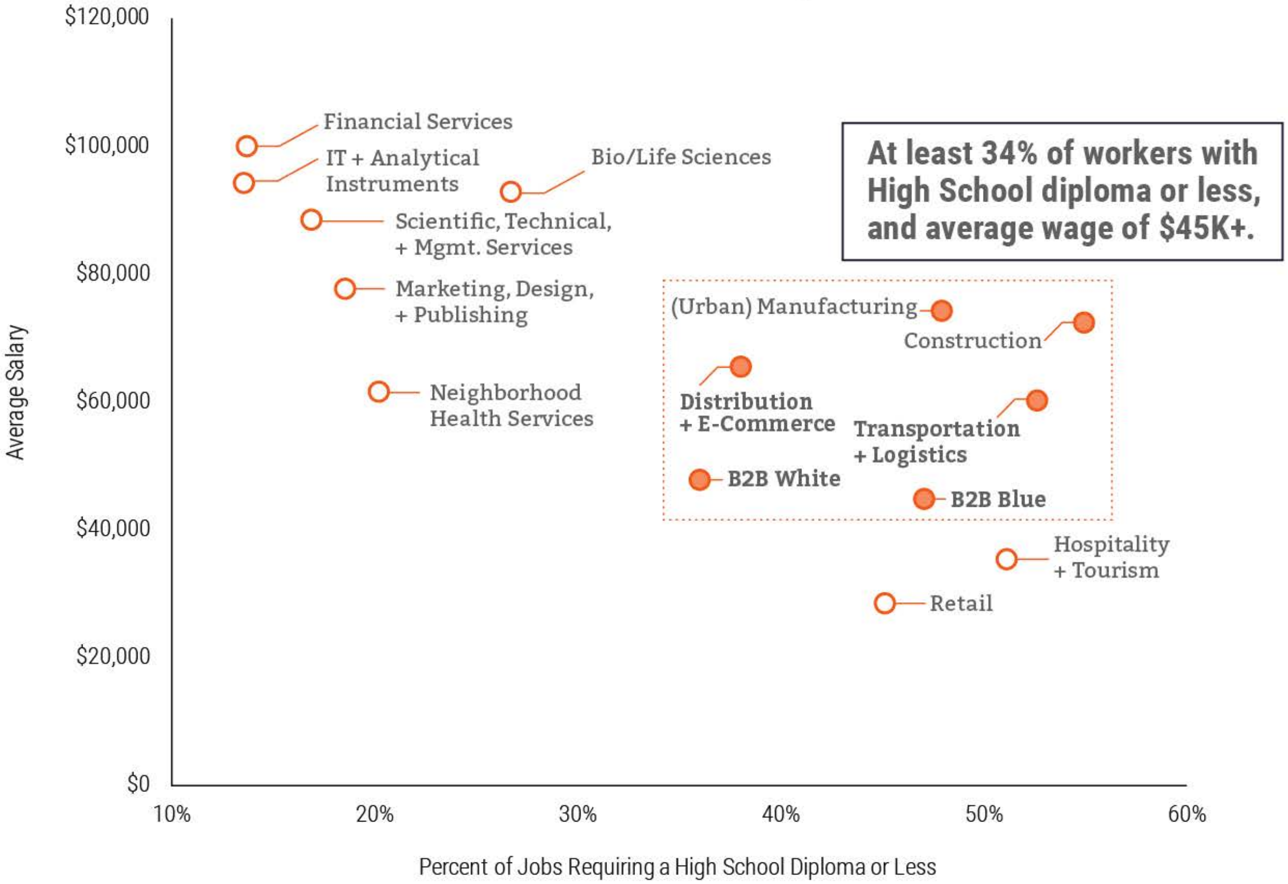
111 Survey of Business Owners, 2012; Mass Economics analysis

Figure B2B-2. B2B LQ (Number of jobs), 2018



Source: QCEW/UDP, 2018; Mass Economics analysis

Figure B2B-3. Average wage vs. educational requirements in City of St. Louis, 2018



Source: QCEW/UDP, 2018; BLS Employment Projections Program; Mass Economics analysis

Figure B2B-4. B2B growth, 2010-2018

Segment	City of St. Louis	Rest of Region	U.S.
Blue Collar B2B Off-Site	-4%	13%	20%
Blue Collar B2B On-Site	-5%	20%	15%
White Collar B2B	20%	21%	28%
B2B Total	**1.5%**	**18%**	**21%**

Source: QCEW/UDP, 2018; Mass Economics analysis

Cluster Growth Opportunities

Despite the wide range of industries, activities and firm characteristics included in B2B there are important commonalities that define the cluster: type of clients, regional market areas, high labor intensity, and unique working capital challenges. These characteristics must shape the types of technical assistance (TA) developed and delivered to B2B firms in order to support their growth. The first commonality relevant to TA is that B2B blue-collar activities, which account for 65% of B2B employment in the U.S., are labor-intensive. In B2B blue-collar segments nationally, wages account for 48% of value added (VA), 20% higher than in nationally- and globally-traded industries. In the B2B off-site segment, wages account for 68% of VA nationally, and in the B2B on-site segment, wages account for 43% of VA nationally.[112] These characteristics mean that the ability to project workforce needs and hire and manage staff will be a critical component of firm growth and profitability.

Second, because of their position relative to lead firms—B2B firms are often third- or fourth-tiers in supply chains or sub-contractors to sub-contractors in project hierarchies—the time between a firm's work and actual payment is often unusually long. Combined with the labor-intensity of B2B segments, and state and federal requirements to pay employees on 15- to 30-day cycles, unfavorable payment terms mean that working capital challenges are a structural condition for firms across the cluster. These challenges are exacerbated for B2B firms that have little in the way of physical capital (e.g., equipment) against which to secure loans or lines of credit. Because of these characteristics, availability of high-quality working capital options (see discussion of capital challenges below) and extensive training in cash flow management are even more critical to B2B than to small businesses generally.

A third feature of B2B and other firms that operate in lower tiers of supply chains is a high likelihood that a B2B firm has to manage a large number of customers relative to revenue and that significant growth will require a broad-based marketing strategy. Many programs aimed at supporting small- and mid-sized firm growth, however, focus on managing significant growth from one client by helping firms with, say, bonding for large construction projects or rapidly expanding their workforce to capture significantly larger contracts from existing clients. For B2B firms, technical assistance should instead provide guidance on marketing to and managing a relatively large number of small- and mid-sized clients.

Cluster-specific technical assistance for B2B firms will not require new TA providers but the development of new curricula and materials that can be distributed to the city's existing small business infrastructure (e.g., Center for Emerging Technology, Missouri Small Business Development Center, SCORE St. Louis).

Many growth initiatives for local firms, including MWBEs, focus on the demand side, with things like "buy local" campaigns and efforts to steer anchor procurements to local and/or under-represented entrepreneurs. Supporting inclusive B2B growth will certainly benefit from demand-side initiatives, which aim to increase the number of contracts and total revenue at local businesses, but these efforts work best when integrated with supply-side programs that aim to improve operations and growth capacity of individual firms in B2B segments. These different approaches are illustrated in Figure B2B-5, where columns (circled in red) represent demand-side initiatives and rows (circled in green) represent supply-side initiatives.

112 QCEW/UDP, 2018; Mass Economics analysis

Figure B2B-5. B2B is related to but distinct from procurement programs

		Procurement			
	B2B Activity	Eds	Meds	Corporate	Vertical A
	Data Processing + Housing	$	$$	$$	-
	Computer Services	$	$	$$	-
	Catering + Food Wholesalers	$$	$$	$	-
	Equipment Wholesalers	$	$	$$	-
B2B	Facilities Management	$$	$$	$	-
	Repair + Serving	$	$$	$	-
	Etc.	-	-	-	-

Note: The red ovals encompass demand-side initiatives; the green ovals encompass supply-side initiatives

Demand-side initiatives provide multiple benefits, including demonstrating success for large buyers reluctant to source from St. Louis firms, matching growth opportunities with the supports needed for B2B firms to scale successfully, and linking St. Louis suppliers with the city and region's largest traded cluster firms (and, as a result, opening global markets for smaller St. Louis firms). Large institutions in St. Louis have demonstrated their support for the local business community through a variety of individual local sourcing efforts. Washington University's purchasing and construction spend in the region amounted to $518M in 2018 ($229M on construction and $289M on goods and services)[113] and the university has an Office of Supplier Diversity, chartered with the intention of supporting diverse local businesses.[114] The office maintains a public database of small business vendors, including firms beyond St. Louis, that tracks MBE and veteran ownership status, among other metrics.[115] Other civic institutions conduct vendor registrations, and institutions supported by the Metropolitan Zoological Park and Museum Taxing District, which levies property taxes in a portion of the region for the St. Louis Zoo, Missouri Botanical Garden, and the Museums of Art, Missouri History, Natural History, and Science,[116] cite their intention to "[contract] with qualified businesses within the District (comprised of St. Louis and St. Louis County) whenever possible."[117] While these initiatives are a strong first step, they must be amplified and coordinated across the landscape of large institutions in St. Louis to maximize their support for B2B firms in St. Louis.

In order to support B2B cluster growth in the City of St. Louis, the city's challenged small business and B2B business lending environment must be dramatically improved. There are some indicators that would suggest that lending activity would be strong in the city: St. Louis ranks ninth among the top 50 cities for total bank deposits per capita.[118] However, overall small business lending in St. Louis is about 58% the U.S. rate (29 loans per 1K jobs vs. 49) and the gap is even larger for loans of <$100K (55%, 26 vs. 46) and for loans to businesses with <$1M in revenue (53%, 13 vs. 25).[119] (See Figure B2B-6.) In a study of small business capital flows, JPMorgan Chase found that the median cash buffer for small businesses was 27 days; these challenges are especially acute for labor-intensive businesses – like B2B – which had a cash buffer of only 23 days versus 38 days for capital intensive businesses.[120]

113 Washington University in St. Louis. (n.d.). Economic Impact on the St. Louis Region. Retrieved from Government and Community Relations website: https://governmentrelations.wustl.edu/community-relations/economic-impact-on-the-st-louis-region/

114 Washington University in St. Louis. (n.d.). Supplier Diversity. Retrieved from Resource Management website: https://resourcemanagement.wustl.edu/supplier-diversity/

115 Project interviews and roundtables

116 City of St. Louis. (2019). C*omprehensive Annual Financial Report.* Retrieved from https://www.stlouis-mo.gov/government/departments/comptroller/documents/upload/CityofStLouisMO_CAFR-FY19.pdf

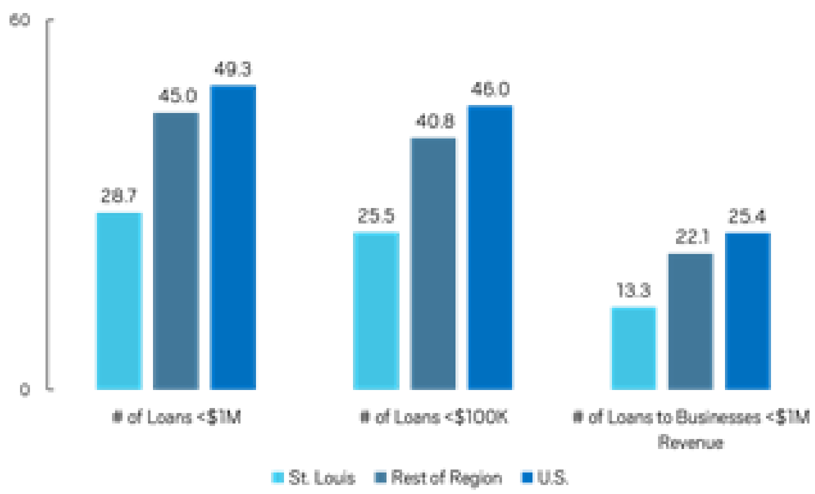
117 Saint Louis Zoo. (n.d.). Vendor Opportunities. Retrieved from https://www.stlzoo.org/about/contact/vendoropportunities

118 FDIC, Summary of Deposits; Mass Economics analysis

119 FFIEC-CRA loan data, 2015-2017; QCEW-UDP, 2017; Mass Economics analysis

120 *Cash is King: Flows, Balances, and Buffer Days.* (2016). JPMorgan Chase and Co. Institute. https://www.jpmorganchase.com/corporate/institute/document/jpmc-institute-small-business-report.pdf

Figure B2B-6. Small business lending in St. Louis per 1K jobs, 2015-2017



Source: FFIEC-CRA loan data, 2015-2017; QCEW-UDP, 2017; Mass Economics analysis

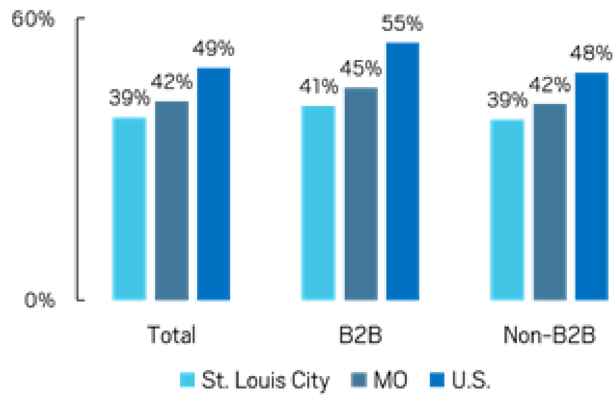
B2B firms, however, have distinct capital demands compared to all small businesses. Based on national SBA 7(a) data, lending to B2B businesses skew towards working capital (despite making up only 16% of U.S. jobs, 19% of revolving loans and 18% of loans with terms <=84 months are made to B2B firms) and micro loans (18% of loans for <=$25K are made to B2B firms).[121] Among SBA 7(a) loans to B2B firms, the lending rate per 100K jobs in St. Louis is only 56% of the U.S. rate (29 vs. 52).[122] The limited SBA lending that does occur in St. Louis is skewed away from the very capital that B2B firms prefer nationally: only 41% of loans made to B2B firms have terms <=84 months compared to 55% in the U.S. and only 7% are for amounts less than $25K (compared to 20% nationally).[123] (See Figures B2B-7 and B2B-8.)

121 SBA 7(a) and 504 loan data, 2015-2018; Mass Economics analysis

122 SBA 7(a) loan data, 2015-2018; QCEW-UDP, 2018; Mass Economics analysis

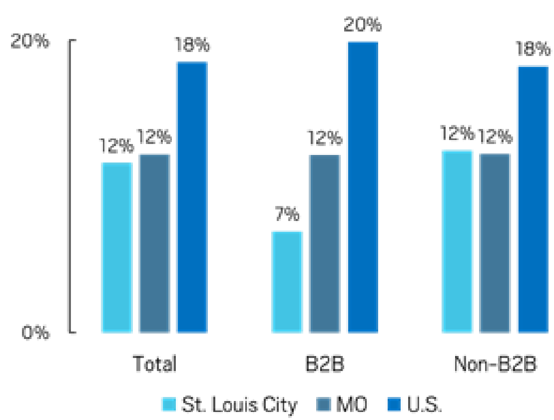
123 SBA 7(a) loan data, 2015-2018; Mass Economics analysis. It is worth noting that the share of revolving loans made to B2B firms in St. Louis is actually almost the same as the U.S. share (37.9% vs. 38.3%)

Figure B2B-7. Share of Loans <= 84 Months Term



Source: SBA 7(a) loan data, 2015-2018; Mass Economics analysis

Figure B2B-8. Share of Loans <$25K, 2015-2018



Source: SBA 7(a) loan data, 2015-2018; Mass Economics analysis

Figure B2B-9. Overview of B2B opportunity

Measure	B2B Cluster	Total City Economy
Jobs, 2018 (K)	24.7	200.1
Location Quotient (LQ)	0.8	n/a
Projected Additional Jobs, 2028	840	11,900
Jobs Requiring Less than a Bachelor's Degree (%)	76%	65%
Average Wage ($K)	$46.3	$61.2
Geography	n/a	n/a
Examples of Types of Jobs	Wholesaling, repair and servicing, HR services, real estate	n/a

Source: QCEW-UDP; Mass Economics analysis
Note: These estimates are based on industry data and exclude public sector employment

Strategies and Action Steps

Strategy 1	Equip SLDC to develop the B2B cluster, including B2B-specific technical assistance and resources

The unique position of B2B firms and presence of common challenges means that internal B2B expertise is an imperative. Internal expertise should be developed through a B2B working group that leverages the knowledge base of local B2B firms and other facets of the business services ecosystem. In response to some of the unique conditions facing B2B firms, additional sub-groups should be convened around their capital needs and MWBE growth. Innovation clusters – like biosciences and tech – should be engaged to find opportunities for industry-specific B2B growth; this will also support B2B-related entrepreneurship in these areas. Finally, real estate and land assembly opportunities for B2B should be considered; potential benefits of shared space for B2B firms include shared equipment, flexibility to grow or shrink in the same building, shared administrative staff, shared delivery/shipment schedules, shared costs (e.g., insurance, telecom, utilities), opportunities for firm referrals, and an internal support network.

Action Item #: B2B-1.1	**Develop internal expertise around the B2B cluster, on subjects such as start-ups, capital needs, real estate needs, and TA**
Leader	SLDC
Potential Partners	Justine Petersen, SLEDP, St. Louis Equity in Entrepreneurship Collective, St. Louis area BSOs
Start Time	Year 1
Duration	3-12 months
Effort to Implement	High
Potential Funding	N/A
Goal/s	Establish knowledge base around B2B; prepare for future programming and technical assistance needs; enable productive convenings of actors that support B2B
Tracking Progress	Staff dedicated to developing internal B2B expertise; representation from diverse actors; attendance at convenings
Action Item #: B2B-1.2	**Sponsor existing conferences geared toward minority entrepreneurs and support the development of new such events**
Leader	SLDC
Potential Partners	Balsa Foundation, BioSTL, Cortex, International Institute, SLEDP
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	Local philanthropy
Goal/s	Support early-stage minority entrepreneurs; establish partnerships to coordinate on inclusion goals
Tracking Progress	Attendance at events; number of entrepreneurs awarded funding or other support

Strategy 2 Coordinate a collective local B2B program

Given the number and strength of St. Louis anchors and traded cluster firms, a collective local procurement effort could have a profound bottom-line impact on St. Louis-based B2B firms. Coordinating their purchasing needs could allow local firms to be engaged to support the needs of the city and region's biggest anchors. Already, individual anchors are considering how to support local businesses and residents – for example, Washington University is developing an "In St. Louis, For St. Louis" initiative[124] - but these efforts are largely individual.

The Detroit-to-Detroit (D2D) program links up big purchasers (part of a 17-member Buyers' Council) with smaller firms,[125] and the program was born out of a major purchasers study that estimated the potential spending by type of the Buyers' Council. Included in this strategy are action items to present alternatives to the current MWBE certification program, which is too onerous for the non-construction firms that make up the vast majority of enterprises owned by racial/ethnic minorities and women. Two paths are proposed: addition of a non-construction certification alternative within the Lambert Airport certification program; and a corporate certification program for small- and mid-sized contracts with an annual maximum threshold (amount TBD). These alternatives can help identify and expand the pool of MWBE suppliers that do business with anchor and corporate entities in the city and region.

Action Item #: B2B-2.1	**Conduct market research to catalogue major purchasers in the city and their purchasing needs, learning from previous regional analyses on contracting and spending***
Leader	SLDC
Potential Partners	Anchors (BJC, SLU, SSM Health, WashU, etc.), federal/state/local government, largest traded cluster firms
Start Time	Year 2
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	Fund study (estimated $30-40K) through local or national philanthropy and funding to implement the Buyers' Council activities
Goal/s	Understand procurement trends and project demand for B2B in St. Louis
Tracking Progress	Completed study and Buyers' Council activities

* *Missouri Defense Supply Chain Analysis*. (2017, July). STLPartnership. https://stlpartnership.com/missouri-defense-supply-chain-analysis/

124 Project interviews and roundtables

125 *Detroit Major Purchaser Survey*. (2013). Mass Economics. http://masseconomics.com/projects/detroit-major-purchaser-survey/

Action Item #: B2B-2.2	Create a B2B working group from representatives of B2B firms, anchor institutions, and existing BSOs, with a sub-group focused on supporting inclusive B2B firm growth
Leader	SLDC
Potential Partners	Center for the Acceleration of African-American Business, Justine Petersen, Regional Chamber, St. Louis Equity in Entrepreneurship Collective, large anchor institution procurement officers, St. Louis area BSOs
Start Time	Year 1
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	N/A
Goal/s	Assess and propose additional requirements for MWBE contracting, establish network of MWBE B2B firms within and without the city, establish more flexible and faster payment terms
Tracking Progress	Working group attendance and participation, development of new requirements for MWBE contracting and payment, presence of formal MWBE B2B network

Action Item #: B2B-2.3	Coordinate with innovation cluster leaders in biosciences and tech to grow city-sourced B2B within these specific industry segments
Leader	SLDC
Potential Partners	BioSTL, St. Louis Equity in Entrepreneurship Collective
Start Time	Year 1
Duration	6 months
Effort to Implement	Medium
Potential Funding	Potential partners
Goal/s	Increase number of MWBE B2B firms serving bioscience cluster (e.g. facilities management, equipment repair and servicing, etc.), adapt learnings to other tech and innovation clusters
Tracking Progress	New contracts and revenues for MWBE B2B firms

Action Item #: B2B-2.4	**Create MWBE certification alternatives**
Leader	Lambert Airport, St. Louis Equity in Entrepreneurship Collective, SLDC
Potential Partners	Corporates
Start Time	Year 1
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	SLDC
Goal/s	Creation of alternative certifications and increase in number of certified MWBEs
Tracking Progress	Certification creation, number of MWBEs certified

Strategy 3	Create a tailored capital strategy for MWBE firms in B2B

According to the most recent (2017) national examination of lending patterns for small businesses, in 2014, nearly three-quarters of male-owned small businesses applicants were approved for a loan as compared to only 61% or female or minority applicants and 47% for Black/African American applicants.[126] For B2B firms, these capital challenges are especially acute and revolve around the accessibility of working capital that can be used to sustain firm operations. A deficit of working capital means that B2B firms struggle to stay afloat while executing larger contracts prior to receiving payment. While applicable to all city residents, an effort to increase credit scores – potentially modeled on the Boston Builds Credit program – could help B2B business owners more easily access capital.

Action Item #: B2B-3.1	**Conduct a survey of B2B businesses in the city to determine capital stack and other financial gaps creating the most common barriers in the industry**
Leader	SLDC
Potential Partners	Balsa Foundation, CDFI Coalition, Community Builders Network, Justine Petersen, LDC, Regional Chamber, SLEDP, B2B firms, select capital providers, St. Louis area BSOs
Start Time	Year 1
Duration	3-12 months
Effort to Implement	Low
Potential Funding	TBD
Goal/s	Understand and document the capital needs and gaps facing B2B firms in St. Louis; identify best practices amongst capital providers; develop presentation of St. Louis B2B firms' capital gaps and needs for sharing and working with local capital providers
Tracking Progress	Completion of surveys that documents B2B firms' capital challenges and needs in St. Louis
Action Item #: B2B-3.2	**Engage lenders from across the capital spectrum to increase working capital lending and lines of credits to B2B firms**
Leader	SLDC
Potential Partners	B2B Working Group, Balsa Foundation, CDFI Coalition, Community Builders Network, LDC, SLEDP, lenders
Start Time	Year 2
Duration	0-3 months
Effort to Implement	Medium
Potential Funding	TBD
Goal/s	Expand and increase B2B lending
Tracking Progress	Number and dollar value of loans made (by type, size, term, etc.)

126 Board of Governors of the Federal Reserve System. (2017). *Report to the Congress on the Availability of Credit to Small Businesses*. Retrieved from https://www.federalreserve.gov/publications/2017-september-availability-of-credit-to-small-businesses.htm

Action Item #: B2B-3.3	Coordinate with banking, philanthropic, and major purchaser partners to develop working capital loan fund
Leader	SLDC
Potential Partners	CDFI Coalition, City, Community Builders Network, Invest STL, SLEDP, national or local philanthropy
Start Time	Year 2
Duration	Ongoing
Effort to Implement	High
Potential Funding	Local or national philanthropy, federal/state/local government, CDFIs
Goal/s	Increase access to working capital for B2B businesses
Tracking Progress	Number and dollar value of loans made (by type, size, term, etc.)
Action Item #: B2B-3.4	**Create a citywide credit building program modeled on Boston Builds Credit and building on the International Institute's credit building program* to increase business owner credit scores and to build a pipeline of businesses for the working capital loan fund**
Leader	SLDC
Potential Partners	African, Asian, Black, Bosnian, and Hispanic Chambers of Commerce; CDFI Coalition; Community Builders Network; International Institute Community Development Corporation; Regional Chamber; financial coaches; financial institutions; local or national philanthropy (e.g., United Way Greater St. Louis); policy makers
Start Time	Year 1
Duration	Ongoing
Effort to Implement	High
Potential Funding	Financial institutions; local or national philanthropy
Goal/s	Improve credit scores of St. Louisan residents and business owners
Tracking Progress	Number of business owners participating in program, increased credit scores

* *Economic Development. (n.d.). International Institute Saint Louis. https://www.iistl.org/economic-development/*

Strategy 4 — Support the development of shared spaces for White Collar B2B in mixed-use neighborhoods and Blue Collar B2B in industrial districts

Real estate and land assembly opportunities for B2B are also important. Potential benefits of shared space for B2B firms include shared equipment, flexibility to grow or shrink in the same building, shared administrative staff, shared delivery/shipment schedules, shared costs (e.g., insurance, telecom, utilities), opportunities for firm referrals, and an internal support network. SLDC should support the development of real estate for shared spaces for White Collar B2B (in downtown, or in mixed use areas) and Blue Collar B2B (in industrial employment districts/centers) by compiling and assessing the real estate needs and locational preferences for B2B firms and educating the market on the types of real estate that would support B2B firms and other potential needs (e.g., incentives).

Action Item #: B2B-4.1	**Coordinate B2B land assembly efforts with other efforts and reserve small- to mid-sized industrial parcels for potential B2B infill**
Leader	SLDC
Potential Partners	City, LRA, federal/state/local government, other public land owners
Start Time	Year 2
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	Consider creating a REIT, a Program-Related Investment from philanthropy, or other investment vehicles to fund this effort
Goal/s	Assembled sites ready for development with publicly released RFPs
Tracking Progress	Number of sites created, acreage of sites created, building square footage supported, number of jobs supported, amount of property taxes collected

Action Item #: B2B-4.2	**Communicate the city's willingness to use incentives to developers in order to promote the creation of affordable B2B shared spaces near major purchasers**
Leader	SLDC
Potential Partners	Board of Aldermen, Mayor's Office
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Low
Potential Funding	N/A
Goal/s	Develop a clear message and communication strategy for conveying the city's goals to developers, clearly explaining the type of support that the city is willing to provide to support the desired activity
Tracking Progress	Number of developers engaged; number of project applications

Rendering of the future NGA facilities in St. Louis, courtesy of McCarthy HITT.

PARTNER CLUSTERS

The city is home to several important clusters in which SLDC should assume a "partner" role, including geospatial and hospitality and tourism (H+T). Already, these clusters show strong cluster leadership and have formal organizations that develop and implement strategies, but each would benefit from SLDC's tools and expertise to drive the physical development each of the clusters needs to realize significant growth. SLDC's primary role should focus on developing physical and other support assets through things such as land assembly, infrastructure development, incentives, and support for housing and amenities.

Geospatial

Cluster Vision

Academic, business, civic, and philanthropic leaders from across the city and the region are working diligently to make St. Louis one of the national hubs for geospatial technologies. At the heart of these efforts is creation of roadmap for industry growth, as well as talent attraction and creation, including preparing the city's K-12 students for futures in geospatial technology. At its broadest, geospatial offers an opportunity to "transition St. Louis into the 'Fourth Industrial Revolution,'" characterized by "the merging of physical and digital worlds."[127] Beyond this is a more prosaic but also critical opportunity: to leverage the new $1.75B NGA building ("N2W") at Jefferson and Cass—and the thousands of workers who will travel there each day—to support new housing and commercial investments to create opportunities for St. Louis residents to engage in the revitalization as workers, residents, and business owners. It is critical that St. Louis adopt strategies that will ensure N2W serves to support vibrancy in the surrounding neighborhoods and not stand as a fortress, like some classified federal facilities.

Cluster Overview

The 2016 announcement that the National Geospatial-Intelligence Agency (NGA) West facility (known as Next NGA West, or N2W) would stay in St. Louis at a new 100-acre campus in North City at the corner of Jefferson and Cass ensures that the roughly 3,100 direct jobs associated with the facility will stay in the city. Just as important, the relocation of the NGA headquarters could act as a foundation for the creation of a geospatial cluster that supports thousands of new jobs in applied areas from precision agriculture, to urban planning, transportation and logistics, and fintech, establishing a knowledge base that can easily be transferred to other disciplines and build up strength in related industries.[128] It has also been reported that NGA will spearhead a Corporate Accelerator with the Missouri Technology Corporation (MTC), presenting a huge opportunity for area start-ups.[129]

The move to North City coincides with a sea change in how NGA engages the private sector. With the proliferation of affordable new sensing technologies, improvements in data mining techniques, increases in processing speed, and reduced costs of information storage, the amount of data generated globally—and the amount collected by NGA—have grown by orders of magnitude.[130] Today, there are a huge number of sources of data, each generating almost unimaginable volumes of information—sensors on agricultural equipment alone have generated trillions of data points—requiring a new type of geospatial agency with much deeper connections to the private sector.[131] One official estimated that N2W would need six million staff today to analyze the entirety of its current data.[132]

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127 TEConomy, "GeoFutures Advisory Committee: Pre-Read Briefing Materials," January 23, 2020

128 Project interviews and roundtables

129 BioSTL. "Job alert: @MoTechCorp is hiring a Strategic Projectd Manager, based in #STL. One project involves working with @NGA_GEOINT & MTC's partners to launch an NGA-sponsored Corporate Accelerator located in St. Louis. More info and to apply: missouritechnology.com #STLjobs #hiring." 5 August 2020, 9:27 AM. Tweet.

130 The Past, Present, and Future of Geospatial Data Use. (2018, February 1). Trajectory Magazine. https://trajectorymagazine.com/past-present-future-geospatial-data-use/

131 Geo-Resolution 2019: The 21st Century Geospatial Ecosystem," Saint Louis University, April 9th, 2019. For other agricultural estimates, see: Meola, A. (2016, December 20). *Why IoT, big data & smart farming are the future of agriculture. Business Insider.* https://www.businessinsider.com/internet-of-things-smart-agriculture-2016-10

132 "Geo-Resolution 2019: The 21st Century Geospatial Ecosystem," Saint Louis University, April 9th, 2019

Cluster Growth Opportunities

The potential upside of geospatial-related economic activity is enormous. Because of the scale of information being handled, NGA officials understand that they will need to create more open relationships with private sector actors. In the past, the extreme sensitivity of NGA responsibilities—a broad range of activities linked to providing precise geographic and navigational data, largely for military and foreign affairs purposes—has been reflected in the physical design of NGA sites, which present as fortresses to the outside world.

The new site, while still laser-focused on security, will include non-secure areas, including workspaces for contractors. The great openness of N2W and the anticipated value of proximity to its staff has already attracted potential suppliers to downtown, the closest developed tech node to the new site. To meet the new demand, T-REX has created a geospatial resource and innovation center that will "prioritize accelerating early-stage geospatial startups and providing support for workforce development."[133]

The scale and scope of geospatial data being generated have led some to describe it as "a new kind of infrastructure." Speaking at the April 2019 Geo-Resolution conference at SLU, Jack Dangermond, founder of ESRI, noted that geospatial capacity evolves from measuring with maps, to visualizing with maps, to analytics, to strategy design, to decision support, to action and that the "process and framework is evolving to become a new kind of infrastructure, like [the] web itself."[134] These foundational elements, both of data as infrastructure, and of the necessary emergence of entirely new tools to handle the scale of information being generated, potentially puts St. Louis at the center of transformation. It is easy, of course, to overstate the potential opportunity associated with geospatial, but the greater risk likely lies in underestimating the transformative potential of the cluster in St. Louis City and the broader region. This is especially true because of the potential applications of geospatial to existing economic strengths in the city and region, including agtech, cybersecurity, fintech, and urban development/analytics.[135]

The geospatial cluster is already well-organized. In 2019 alone, a baseline assessment of cluster assets and opportunities was completed; St. Louis University hosted a conference, "Geo-Resolution 2019: The 21st Century Geospatial Ecosystem"; a St. Louis delegation attended the GEOINT Symposium in San Antonio, where Mayor Krewson gave a keynote address; T-REX started construction on its geospatial resource and innovation center and hired a director; Arch Grants committed to providing grants to five early-stage geospatial tech companies annually; and a lead cluster organization, GeoFutures, was established to attract investment and develop the workforce needed for "St. Louis to be seen as the international hub of innovation and expertise in the geospatial industry, period."[136] In addition, the U.S. Geospatial Intelligence Foundation (USGIF) administers the St. Louis Area Working Group (SLAWG), "a group of industry, government, academic and community partners with a goal to clarify pathways for education and training for geospatial careers and certifications in the St. Louis region."[137] T-REX, the incubator and coworking space located in downtown, has a program dedicated to geospatial, known as Geosaurus. Initiatives are underway to make geospatial curriculum accessible to area students (e.g., NGA's Partners in Education program provides mentorship and teaching, and GatewayGIS offers STEM-related tutoring and exposure to geospatial software).[138,139]

This is remarkable progress in developing

133 Project interviews and roundtables; Rubbelke, N. (2019, July 31). NGA veteran tapped to lead T-REX's new geospatial center. St. Louis Business Journal. https://www.bizjournals.com/stlouis/news/2019/07/31/nga-veteran-tapped-to-lead-t-rex-s-new-geospatial.html

134 "Geo-Resolution 2019: The 21st Century Geospatial Ecosystem," Saint Louis University, April 9th, 2019

135 St. Louis is home to some of the country's most important urban development groups (U.S. Bank's community development entity, McCormack Baron Salazar, Stifel) as well as key data organizations (ESRI, Federal Reserve Bank of St. Louis) and dedicated university resources.

136 *St. Louis Delegation to GEOINT: The Future of Geospatial is STLMade.* (n.d.). AllianceSTL. Retrieved from https://alliancestl.com/st-louis-delegation-to-geoint-the-future-of-geospatial-is-stlmade/; Ruff, C. (2019, October 10). St. Louis Geospatial Leaders Launch GeoFutures To Shape Growing Industry. https://news.stlpublicradio.org/post/st-louis-geospatial-leaders-launch-geofutures-shape-growing-industry; *Arch Grants to Provide Equity-Free Funding to 5 Geospatial Startups in 2020.* (n.d.). Entrepreneur Quarterly. Retrieved from https://eqstl.com/arch-grants-to-provide-equity-free-funding-to-5-geospatial-startups-in-2020/; Project interviews and roundtables; Rubbelke, N. (2019, July 31). NGA veteran tapped to lead T-REX's new geospatial center. *St. Louis Business Journal.* https://www.bizjournals.com/stlouis/news/2019/07/31/nga-veteran-tapped-to-lead-t-rex-s-new-geospatial.html

137 *USGIF St. Louis Area Working Group (SLAWG)*. (n.d.). Retrieved from https://esrifederal.maps.arcgis.com/apps/MapSeries/index.html?appid=d683fe75b7ef454195d93b90e430789f

138 *Partners in Education.* (n.d.). National Geospatial-Intelligence Agency. Retrieved from https://www.nga.mil/Partners/Academic_Opportunities/Pages/Partners-in-Education.aspx

139 Davis, C. (2019, May 23). *High School Students To Get Instruction In A Hot Field—Geospatial Training.* https://news.stlpublicradio.org/post/high-school-students-get-instruction-hot-field-geospatial-training

the organizational structures to support geospatial needs. This progress must be matched by a strategy for physical (as well as talent) development around the N2W site and activities to ensure cluster growth (around the site but also regionally), as well as social and economic equity. For geospatial to reach its potential, it needs to have a center of gravity. In a study of successful cluster initiatives, Brookings notes:

> Most of the cluster initiatives profiled have created a physical center to serve as visible proof that the region is a major hub for the cluster and to provide a space that facilitates knowledge spillovers between firms, academic researchers, and related enterprises. While companies and assets involved in the cluster are often scattered throughout each region, these centers tie them together. These centers may take the form of a single building, an urban district, or a suburban campus.[140]

140 Donahue, R., Parilla, J., and McDearman, B. (2018). Rethinking Cluster Initiatives. Metropolitan Policy Program at Brookings. https://www.brookings.edu/wp-content/uploads/2018/07/201807_Brookings-Metro_Rethinking-Clusters-Initiatives_Full-report-final.pdf

It may be too soon to determine the precise form that this center of gravity will take, though ideally, it would involve NGA, T-REX, and Cortex as connected nodes. If the area around N2W does not develop but N2W remains an island with little off-site activity, geospatial cluster identity and growth will almost certainly suffer. Without deliberate action, this outcome might be more likely than not. Experts interviewed for this project expressed concern that without intentional physical development around N2W, the site could take on the worst characteristics of secure federal facilities, standing as a fortress surrounded by a sea of parking lots, with movement around the site limited to heavy car traffic at the start and end of each work day.[141]

141 Project interviews and roundtables

Such an outcome would also be a disservice to the neighborhoods around NGA. In the words of one local stakeholder, "NGA needs a place-based strategy—I can't say this enough—and need the city to prioritize this area. Downtown needs help but not like the Near North Side does."[142] Development and operations of N2W must prioritize economic opportunity and quality of life considerations for residents in adjacent neighborhoods. N2W represents a massive investment, and the benefits of the investment should be channeled to residents of the surrounding community. The investment is shrouded in valid community concerns that N2W "doesn't feel like it's for us" – and without intentionality around inclusion, "residents won't see impact of this transformative investment." [143]

142 Project interviews and roundtables

143 Project interviews and roundtables

Figure G-1. Overview of geospatial opportunity

Measure	Geospatial Cluster	Total City Economy
Average Wage ($K)	Higher	$61.2
Geography	Central West End, Clayton-Sarah, Downtown Core, Midtown, NGA	n/a
Examples of Types of Jobs	Surveying and mapping, mapping services, and satellite telecommunications	n/a

Source: QCEW-UDP; Mass Economics analysis
Note: These estimates are based on industry data and exclude public sector employment

"NGA is a way to pilot new programs."

Strategies and Action Steps

Strategy 1	Ensure that the neighborhoods surrounding NGA are included in planning and programming efforts related to NGA and geospatial more broadly

In order for the community to be engaged in planning efforts, there must be a sustainable revenue source that provides dollars for land acquisition, housing rehabilitation and development, community initiatives, and public improvements, as well as an on-the-ground entity able to work with the community to plan and carry out improvements.

Through the engagement process for this project, local stakeholders emphasized the critical nature of inclusive and equitable outcomes around the new NGA project, as well as the potential for the N2W investment and operations to be truly transformative. There were three areas of emphasis: education and training that would link St. Louisans to direct and indirect jobs created in geospatial; inclusive neighborhood transformation; and a commitment from the outset of designing systems and measuring outcomes to ensure that all St. Louisans, including the city's Black/African American community, benefits from N2W. As one local stakeholder expressed the urgency of inclusive outcomes: "Shame on us if we don't do this right."[144]

Action Item #: G-1.1	Consider a Community Improvement District (CID) or other arrangements to help fund a dedicated Community Development Corporation (CDC) for the community
Leader	SLDC
Potential Partners	Commercial District Coalition, Community Builders Network, GeoFutures coalition, Invest STL, Justine Petersen, Metropolitan St. Louis Equal Housing and Opportunity Council, North Newstead Association, Planning & Urban Design Agency, SLEDP, St. Louis Promise Zone,
Start Time	Year 1
Duration	3-5 years
Effort to Implement	High
Potential Funding	Invest STL, GeoFutures, local and national philanthropy
Goal/s	Create a dedicated funding source to enhance community capacity
Tracking Progress	Creation of effective CDC operating within SLDC with sufficient funding for key functions around planning, real estate development, infrastructure, and business supports

144 Project interviews and roundtables

“The analysts I’ll need in 2030 are in seventh grade today.”

Action Item #: G-1.2	**Support the ongoing development and implementation of K-12 geospatial curriculum and internship models to prepare St. Louisans for jobs in geospatial**
Leader	GeoFutures coalition
Potential Partners	Gateway Global AYBA, NGA, SLU, St. Louis Public Schools and Charter schools, T-REX, USGIF, SLDC
Start Time	Year 1
Duration	12-24 months
Effort to Implement	Low
Potential Funding	Local or national philanthropy, Invest STL, GeoFutures
Goal/s	Dissemination of curriculum in SLPS and Charter schools and creation of geospatial courses adopted by SLPS and Charter schools, with emphasis targeted on Gateway STEM Academy; utilize the city’s geospatial opportunity to establish itself as a leader of GIS curriculum development and certification programs
Tracking Progress	Development of curriculum; number of schools and students receiving training; number of people getting geospatial jobs as a result of the training

Action Item #: G-1.3	**Roll out a skills-based hiring framework based on the newly developed geospatial training and internship models that makes cluster jobs accessible to those without a bachelor’s degree**
Leader	GeoFutures coalition
Potential Partners	Gateway Global AYBA, NGA, SLU, St. Louis Public Schools and Charter schools, T-REX, USGIF, SLDC
Start Time	Years 3-5
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	N/A
Goal/s	Create linkages between geospatial curricula and cluster employers; create geospatial job opportunities for the un- and under-employed
Tracking Progress	Number of firms utilizing a skills-based hiring framework

Action Item #: G-1.4	**Support NGA in identifying its supplier needs and work on outreach to MBEs and WBEs, map the opportunities likely to be generated by NGA and related supplier investment, and make these efforts transparent to the community**
Leader	New community development corporation (CDC) in the areas surrounding NGA (“Geo-Cortex”), SLDC
Potential Partners	GeoFutures coalition, NGA, T-REX
Start Time	Years 3-5
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	N/A
Goal/s	Connect NGA procurement and supplier opportunities to local businesses
Tracking Progress	Creation of NGA supplier needs network

Action Item #: G-1.5	**In concert with other ongoing efforts, engage the ISO/ESO ecosystem to prepare neighborhoods and residents for NGA-related opportunities, perhaps by creating an innovation lab that can support engagement and convenings around topics such as smart cities**
Leader	New CDC, SLDC
Potential Partners	GeoFutures coalition, NGA, T-REX, ISO/ESO ecosystem
Start Time	Years 3-5
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	N/A
Goal/s	Ensure that community residents and businesses are positioned to respond to NGA-related opportunities
Tracking Progress	Number of local residents and businesses engaged

Strategy 2	Prioritize physical development, including new and infill development, alongside anti-displacement surrounding NGA

To ensure both growth and equity, we propose that SLDC and other city EDOs build on current activities and develop a place-based strategy that prioritizes physical development surrounding NGA. (See Ch. 5: Places.) Project Connect is an ongoing effort that aims to coordinate planning and development efforts around NGA, identifying five key nodes, or "demonstration areas," for tailored development processes and goals.[145] Building on such efforts, physical development near NGA must support off-site and spin-off activity around the N2W site to increase the potential geospatial-related economic upside, while also benefitting current residents living in and nearby the NGA district.

Action Item #: G-2.1	**Support the existing residents of the areas surrounding NGA and prioritize quality of life and opportunity considerations, including anti-displacement, by supporting and/or hosting events to engage residents**
Leader	Project Connect, SLDC
Potential Partners	Community Builders Network members, Forward Through Ferguson, GeoFutures coalition, Invest STL, Mayor's Office, NGA, Old North St. Louis Restoration Group, Planning & Urban Design Agency, SLACO, SLEDP, neighborhood associations, CDCs
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	Local and national philanthropy
Goal/s	Provide opportunities for residents to engage with N2W
Tracking Progress	Number of residents engaged

145 Project Connect Action Plan. (2017). City of St. Louis. https://www.stlouis-mo.gov/government/departments/sldc/project-connect/upload/ActionPlan_FINAL_Printable-3.pdf

Action Item #: G-2.2	Implement the Project Connect Development Plan for the areas surrounding NGA
G-2.2.1	Plan for and support commercial uses along Jefferson Ave. and on streets bordering the N2W site
G-2.2.2	Support the reuse of Pruitt-Igoe for jobs-intensive traded cluster development that supports overall job growth in the neighborhood, city, and region, preferably related to opportunities created by N2W
G-2.2.3	Encourage new mixed-income housing infill development around N2W
G-2.2.4	Acquire land for future development along Jefferson Ave. and establish clear expectations for density and land uses
Leader	City, new CDC, SLDC
Potential Partners	Metropolitan St. Louis Equal Housing and Opportunity Council, SLEDP, developers
Start Time	Year 1
Duration	24 months
Effort to Implement	High
Potential Funding	Work through Land Strategy
Goal/s	Develop plan and obtain site control of key parcels to support the growth of the geospatial cluster in the city; create jobs and amenities (e.g., commercial, retail) to promote NGA community – N2W worker interaction, off-site activity, and help attract geospatial/tech entrepreneurs (that demand amenities, third places, etc.); reuse Pruitt-Igoe site for good and accessible jobs-intensive development; create proximate housing assets that will support future growth
Tracking Progress	Number of opportunity development parcels identified; creation of development plan; eventual occupancy of developed parcels by geospatial firms; put out RFPs including requirements on job accessibility and mixed-use activity; number of fast-tracked rezoning, permitting processed for commercial developments on targeted streets; put out an RFP including requirements on job intensity, job accessibility, mixed-use activity, and/or local hiring; presence of a plan for housing development

Action Item #: G-2.3	**Develop and track a set of equity indicators related to all aspects of N2W: construction, hiring, neighborhood development, housing, entrepreneurship opportunities, and quality of life improvements for existing residents**
Leader	GeoFutures coalition
Potential Partners	Forward Through Ferguson, Invest STL, Mayor's Office, Planning & Urban Design Agency, Project Connect, SLEDP, SLDC
Start Time	Year 1
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	Local and national philanthropy
Goal/s	Creation of equity indicators and tracking mechanisms (coordinate with current city Equity Indicators and tracking metrics)
Tracking Progress	Adoption of indicators and tracking

Strategy 3 — Create strong connections between N2W, nearby neighborhoods and Downtown

As a federal facility with high security precautions, the NGA headquarters is designed as a self-contained campus. While necessary to ensure compliance with federal requirements, strong connections to nearby neighborhoods and employment districts are necessary. Such connections should build on existing efforts, including the Missouri Department of Transportation's off-site improvements along 20th and 22nd and the north-south MetroLink expansion, incorporate the findings from the Metro TOD study, and support and grow the Project Connect effort on transportation and development surrounding NGA. The potential Greenway alignments along St. Louis Ave. will help to integrate N2W into a larger network of connections. Jefferson is a critical opportunity to connect with the central core and is already proposed for street improvements and future transit service. In addition, clear connections along 20th Street and 14th Street (from Florissant) are necessary to provide clear connections to Downtown. These connections should include bike lanes and clear wayfinding but a shuttle should also be considered that provides regular connections between NGA, Downtown and Cortex.

Action Item #: G-3.1	**Champion the NGA area for the initial build-out of the Brickline Greenway, and develop transit, a shuttle, bike lanes, and wayfinding to improve connections between NGA, Downtown, T-REX, Cortex, Harris-Stowe State University, and other key nodes, as well as between Cortex and areas north of Delmar**
Leader	Bi-State Development, Board of Public Service, Great Rivers Greenway, Planning & Urban Design Agency, SLDC
Potential Partners	City, GeoFutures coalition, philanthropy
Start Time	Year 1
Duration	12-24 months
Effort to Implement	High
Potential Funding	N/A
Goal/s	Establish NGA as a Greenway node; create connections between NGA and other city nodes; connect to Grand Blvd.
Tracking Progress	Number and diversity of connections by mode


GATEWAY ARCH
RIVERBOATS
RIVERBOAT
FRESH CUT FRIES
HAMBURGER HOT DOG
FRESH SQUEEZED
LEMONADE
EGG ROLLS
CRAB RANGOON

Hospitality and Tourism

Cluster Vision

The Hospitality and Tourism cluster supports thousands of jobs in the City of St. Louis. The firms, entrepreneurs, and workers who make up the cluster provide the goods and services that make tourists' time in the city memorable and enjoyable. The cluster has strong leadership and a vision for the necessary assets needed to attract additional events and tourists. In this framework, however, the cluster is asked to play an additional role: to collaborate with a broad range of stakeholders to accelerate the growth and transformation of downtown amenities (retail, restaurants) to improve quality of life for residents and workers alike, and to support residential investment and growth. At the heart of a vibrant and growing Downtown St. Louis lies a symbiotic evolution of tourism, amenities, and residential activity.

Cluster Overview

Like geospatial, hospitality and tourism (H+T) is a cluster that requires supports in terms of physical development in order to contribute to the city's growth. Already a major source of entrepreneurship and jobs, H+T employs 6.6K people in the City of St. Louis in activities such as accommodations, amusement parks, cultural and educational events, gaming, spectator sports, and tourism related services. H+T has a location quotient (LQ) of 1.3, implying that it has 30% more employment than expected for an economy of its size.[146] Among H+T sub-clusters, the city's biggest strength relative to the US average is spectator sports (LQ = 4.5), but accommodations is the biggest sub-cluster by number of jobs (~3,500). (See Figure HT-1.)

146 QCEW/UDP; Mass Economics analysis

In addition to being accessible for workers at a range of skill levels, H+T also offers inclusive entrepreneurship opportunities. Almost half (45%) of all H+T jobs in the city require at most a high school diploma, the same as the nation, and over three-quarters (77%) of all H+T jobs in the city require less than a bachelor's degree. Nationally, over one-quarter (27%) of privately-held H+T firms are MBEs (versus only about 18% economy-wide), and just under one-fifth are WBEs (about 1% point lower than economy-wide).[147]

Cluster Growth Opportunities

Although H+T is a strength for the city, from 2010 to 2018, the cluster experienced no employment growth in the city despite national growth of 18%. This performance is surprising, given the rich cultural and entertainment assets in the city and strong cluster leadership stemming from Explore St. Louis. Famously, many of the city's cultural attractions are free—among US cities, only Washington D.C. has more no-cost venues.[148]

147 SBO, 2012; Mass Economics analysis

148 Table of Experts: Tourism and business meetings. (2016, May 19). *St. Louis Business Journal.* Retrieved from https://www.bizjournals.com/stlouis/feature/table-of-experts/table-of-experts-tourism-and-business-meetings.html

The City of St. Louis is home to numerous cultural attractions like the Gateway Arch National Park (over 2 million visitors in 2018),[149] St. Louis Zoo (approximately 3 million visitors each year), and St. Louis Science Center (over 993 thousand visitors on-site in 2018), as well as high-performing professional baseball and hockey teams (and will soon be home to a professional soccer team). The City Museum boasts the title of being "one of the world's 50 coolest places."[150] In 2018, over 26 million people visited the city and were estimated to generate $5.8 billion in spending.[151] The city is also a destination for large-scale conventions: in 2019, the top five conventions were expected

149 Stats Report Viewer. (n.d.). Retrieved from https://irma.nps.gov/STATS/SSRSReports/Park%20Specific%20Reports/Monthly%20Public%20Use; Fact Sheet. (n.d.). Retrieved from Saint Louis Zoo website: https://www.stlzoo.org/about/contact/pressroom/factsheet; Saint Louis Science Center. (2018). Opening Minds to Science: The Saint Louis Science Center's Report to the Community. Retrieved from St. Louis Science Center website: https://issuu.com/saintlouissciencecenter/docs/slsc_opening_minds_to_science_2018

150 Hahn, V. S. (2019, December 6). City Museum, "the world's largest playground," makes list of 50 coolest places in the world. St. Louis Post-Dispatch. https://www.stltoday.com/lifestyles/city-museum-the-world-s-largest-playground-makes-list-of/article_24f5a1f6-5578-56a5-84d1-7e6d3366da35.html

151 About Us. (2011, February 25). Retrieved from Explore St. Louis website: https://explorestlouis.com/about-us/

Figure HT-1. H+T sub-clusters

H+T Sub-Cluster	Location Quotient, 2018	Jobs, 2018
Spectator Sports	4.5	1,050
Cultural and Educational Entertainment	3.0	900
Accommodations and Related Services	1.3	3,510
Gaming Facilities	1.3	800
Other Tourism Attractions	0.4	200
Tourism Related Services	0.3	120
Amusement Parks and Arcades	0.0	<10

Source: QCEW-UDP; Mass Economics analysis

Firm Clusters by Sector: Hospitality & Tourism

Source: YTS data, Mass Economics analysis.

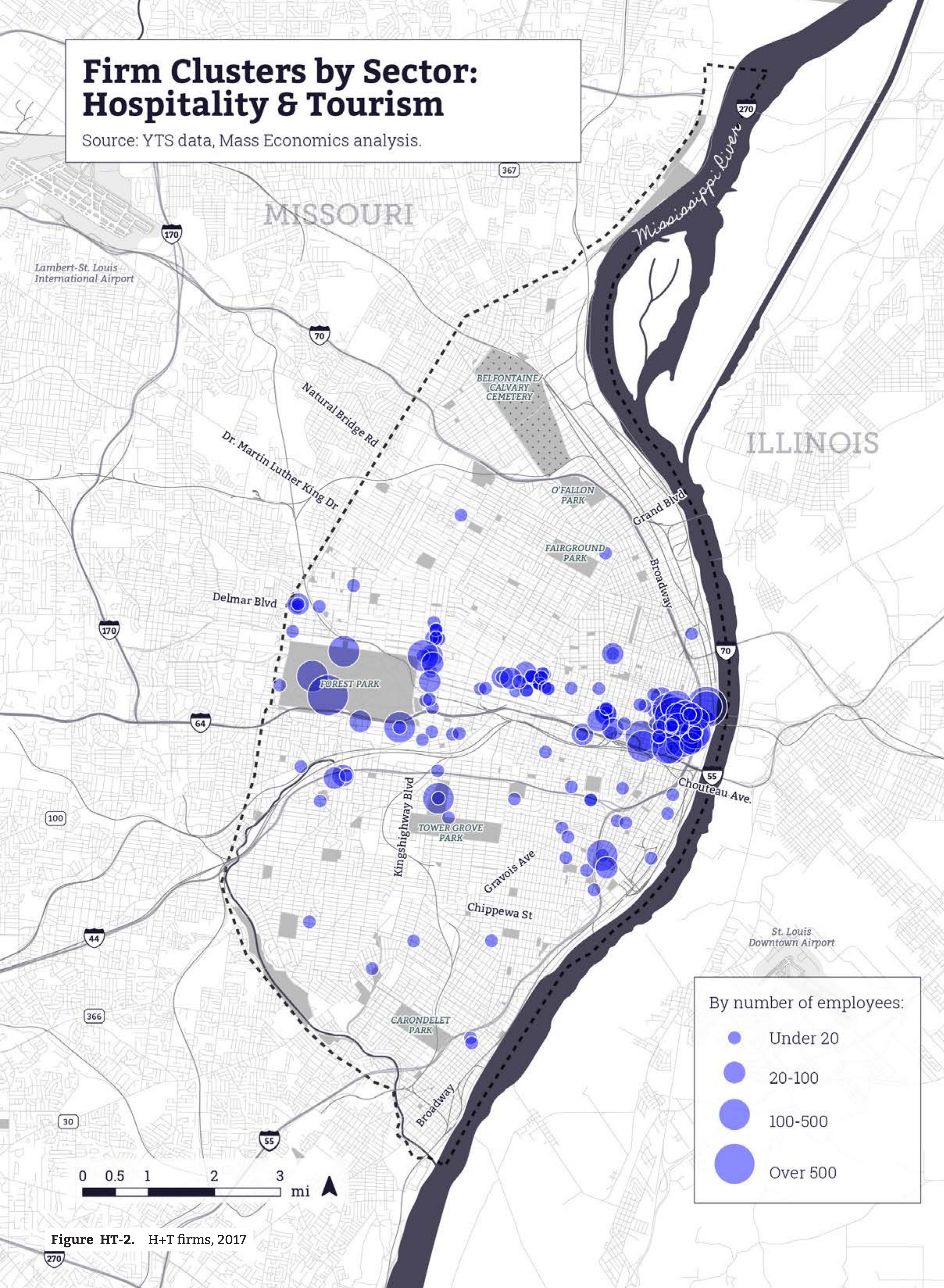

Figure HT-2. H+T firms, 2017

"It's kind of a forgotten industry - they need us to support everything else they want to do - but it's not a focus, and there needs to be more of a focus on that partnership."

to host over 115K people and contribute over $75 million in direct spending, over the course of just 29 days.[152]

Many of the city's H+T assets are located in Downtown (see Figure HT-2). These assets are increasing in quality and quantity: the grounds surrounding the Arch have undergone hundreds of millions of dollars-worth of updates and enhancements,[153] the convention center is expanding, Union Station has undergone extensive renovations, new hotels have recently opened or are under construction, major league soccer will arrive in 2020, the second phase of Ballpark Village will soon be completed, and in 2019, the Cardinals re-took their position as second-highest in MLB attendance.[154] These changes will have a positive effect on visitor counts but will not address a fundamental limiting factor in translating visitors to economic impacts: the amount of time and money out-of-town visitors spend on each trip; and the number of (non-work) trips by residents of the city and region; and the amount of money spent on work- and non-work trips by local and regional visitors.

All of these are challenged by the number and quality of Downtown amenities (retail, restaurants, services).[155] The core driver of each of these issues is the relative lack of housing and amenities Downtown, a phenomenon that is not unique to St. Louis. As one local expert summarized: "Increasing residential activity has to be part of helping tourism,"[156] as this residential activity supplements the demand from tourists for restaurants and other activity and further increases cluster growth. There are also opportunities to support smaller firms within H+T, including restaurants and retailers, that are located throughout the city.

152 St. Louis' largest conventions and group events. (2019, February 8). Retrieved from St. Louis Business Journal website: https://www.bizjournals.com/stlouis/subscriber-only/2019/02/08/st-louis-largest-conventions-and-group.html

153 Garth, G. (n.d.). Gateway Arch: An American Classic gets a major overhaul. USA Today. https://www.usatoday.com/story/travel/destinations/2018/06/29/gateway-arch-national-park-st-louis/744274002/

154 MLB Attendance Report. (2019). ESPN.com. http://www.espn.com/mlb/attendance; Moran, E. (2019, August 14). Cards' Offseason Changes Help Attendance Numbers. Front Office Sports. https://frntofficesport.com/st-louis-cardinals-attendance/

155 Project interviews and roundtables

156 Project interviews and roundtables

Figure HT-3. Overview of H+T cluster opportunity

Measure	H+T Cluster	Total City Economy
Jobs, 2018 (K)	6.6K	200.1
Location Quotient (LQ)	1.3	n/a
Projected Additional Jobs, 2028	270	11,900
Jobs Requiring Less than a Bachelor's Degree (%)	77%	65%
Average Wage ($K)	$71.8K	$61.2
Geography	Downtown Core, Laclede's Landing	n/a
Examples of Types of Jobs	Concierge, casino workers, museum archivists, curators	n/a

Source: QCEW-UDP
Note: These estimates are based on industry data and exclude public sector employment

Strategies and Action Steps

Strategy 1	Implement a retail, entertainment and tourism growth and attraction initiative with emphasis on Downtown

At present, H+T demand fluctuates with major sporting events and other periodic events. Given the fact that many of the H+T assets are located Downtown and that the daily population of Downtown largely consists of workers, Downtown commercial activity, especially retail, must be tailored to these conditions, as well as responsive to the needs and interests of other groups experiencing Downtown (e.g., residents, various types of tourists). The unique demand profile of Downtown is being studied within the Design Downtown STL project and recommendations will be made for early wins to grow Downtown amenities within a changing retail landscape nationally. These efforts must be supported by SLDC and revisited as Downtown population, employment, and tourism continues to evolve.

Retail has obvious implications for commercial corridor vitality and neighborhood quality of life, but it can also catalyze new development: retail is a critical factor for real estate developers and can make or break the value of their deal.[157] As a functional area, retail cultivation can be supported by other SLDC activities, including the development and dissemination of regional data and information. The Data Center, a data platform focused on Southeast Louisiana, has been leveraged by retailers interested in gaining insights into prospective sites.[158]

SLDC should spearhead a retail-oriented working group with the intention of building up the retail options in the city, leveraging the expertise of economic development agencies and real estate brokers alike to bring more retailers to the city.

Action Item #: HT-1.1	**Undertake a retail market study for downtown by demand and establishment type, focused on pedestrian experience, corridors, and connections and taking into account the different groups and demand by time of day/week/season**
Leader	Downtown CID, Downtown STL, Explore STL
Potential Partners	SLDC
Start Time	Year 1
Duration	3-12 months
Effort to Implement	Medium
Potential Funding	Local or national philanthropy, SLDC
Goal/s	Establish conditions for downtown retail establishments to thrive
Tracking Progress	Number of downtown visitors, local spend

157 Project interviews and roundtables

158 *The Data Center*. (n.d.). The Data Center. Retrieved from https://www.datacenterresearch.org/

GIVEN THE FACT THAT MANY OF THE H+T ASSETS ARE LOCATED DOWNTOWN AND THAT THE DAILY POPULATION OF DOWNTOWN LARGELY CONSISTS OF WORKERS, DWNTOWN COMMERCIAL ACTIVITY, ESPECIALLY RETAIL, MUST BE TAILORED TO THESE CONDITIONS, AS WELL AS RESPONSIVE TO THE NEEDS AND INTERESTS OF OTHER GROUPS EXPERIENCING DOWNTOWN.

Action Item #: HT-1.2	**Create a retail-oriented working group tasked with attracting new retail establishments and expanding the use of existing data platforms to support retail development**
Leader	SLDC
Potential Partners	Missouri Partnership, Regional Data Alliance, SLEDP, commercial real estate brokers, local CDCs, Community Improvement Districts, Transportation Development Districts, etc.
Start Time	Year 1
Duration	12 months
Effort to Implement	Medium
Potential Funding	N/A
Goal/s	Expand the local retail options in the city; coordinate with other commercial corridor activity to improve neighborhood quality of life; support the workforce needs of H+T, including transportation, job training, and language accessibility for immigrants
Tracking Progress	Diversity of working group membership; attendance at working group sessions
Action Item #: HT-1.3	**Hire staff to focus on downtown development and Design Downtown STL implementation**
Leader	SLDC
Potential Partners	Downtown STL, Explore STL
Start Time	Year 1
Duration	Ongoing
Effort to Implement	High
Potential Funding	Local and national philanthropy, SLDC
Goal/s	Create internal capacity focused on downtown
Tracking Progress	Hiring of new staff

Strategy 2	Develop strategic programming for businesses with a high proportion of revenue from tourism, tailoring streams of programming to MWBEs and small firms

Given the fact that businesses focused on tourism also rely on worker and resident spending, SLDC should work with these businesses to create programming around how to maximize their revenues from specific events and provide guidance on other ways to diversify their revenue streams. This type of programming should have a focus on MWBE and racially/ethnically diverse firms and take into account challenges that might be unique to smaller firms.

Action Item #: HT-2.1	**Provide a multi-week class on operating a stable and profitable hospitality and tourism business with a focus on operating practices to adapt to the large daily, weekly, and seasonal fluctuations in activity in the Downtown area**
Leader	Downtown STL
Potential Partners	Explore STL, International Institute, St. Louis Community College, SLDC
Start Time	Year 1
Duration	3-12 months
Effort to Implement	High
Potential Funding	Local or national philanthropy
Goal/s	Help businesses dependent on tourism maximize their revenues from key events, diversify revenue sources, etc.
Tracking Progress	Number of businesses served

Strategy 3 Support the development of a new hotel, consistent with the findings from the St. Louis Hotel Market Analysis

Released in September 2019, the St. Louis Hotel Market Analysis evaluated the hotel-related needs of downtown St. Louis, as well as the Cortex/Central West End. One of the main findings of the study is that Downtown requires another hotel near the convention center.[159] SLDC should act on these findings and support the development of a new, 700+-room hotel in walking distance to the Convention Center.

Action Item #: HT-3.1	**Building on the findings from the St. Louis Hotel Market Analysis, attract a new hotel to Downtown to support the convention center**
HT-3.1.1	In collaboration with the Convention and Visitors Commission (CVC), develop an RFP for a 700-900-room Headquarters Hotel
HT-3.1.2	Incorporate the parking study results into the RFP
HT-3.1.3	Advertise the RFP broadly and reach out directly to large hotel brands, with an emphasis on flags that are currently not in the St. Louis market
HT-3.1.4	Based on conversations with developers, financiers, hotel chains and legislative leaders, devise parameters for incentives to use in negotiating with bidders
HT-3.1.5	Utilizing public input, select a hotel developer and execute a redevelopment agreement with the developer
Leader	SLDC
Potential Partners	Downtown STL, Explore STL
Start Time	Year 1
Duration	12-24 months
Effort to Implement	Medium
Potential Funding	Downtown CID
Goal/s	Support potential users of the convention center, make the convention center an attractive venue for large-scale events
Tracking Progress	Development of a new hotel

159 *Analysis of the St. Louis Hotel Market.* (2019). Land Clearance for Redevelopment Authority of the City of St. Louis. https://www.stlouis-mo.gov/government/departments/sldc/documents/upload/2019-St-Louis-City-Hotel-Market-Analysis.pdf

SUPPORTING ST. LOUIS BUSINESSES AND REGIONAL PARTNERSHIPS

An overview of the city's cluster activities and specializations was provided in Chapter 2: Economic and Demographic Report, and additional detail on key individual clusters was provided throughout this chapter. It is worth considering these strengths in the context of the larger regional economy, to provide perspective on distinctive and mutual city-region strengths and consider how those should shape the city's growth strategies.

As shown in Figure R-1, of the 51 traded clusters defined by the U.S. Cluster Mapping Project at Harvard Business School, only three are specializations (i.e., with an LQ >1) in both the city and the region: only biopharmaceuticals, downstream chemical products, and footwear have a greater share of total employment than the national average in both geographies. And one of these, footwear, is a tiny cluster, with only about 300 jobs across the region and 16.7K across the entire U.S. The City of St. Louis has 11 additional specializations (lower right quadrant) that are not shared by the rest of the region while the rest of the region has 14 specializations (upper left quadrant) that are not shared by the city. These data illustrate why the idea of "regional" specializations—based on data that aggregate activities in an urban core like the City of St. Louis, with smaller urban or suburban towns and cities – can lead to sub-optimal development strategies.

In general, it is important to differentiate between distinctive and shared growth opportunities. For example, as discussed in detail later in this chapter, although agtech to date has grown largely outside the city, the cluster could evolve and grow in St. Louis if the city's fintech capabilities and other assets (e.g., TDL assets) became more central to the cluster. This co-evolution seems much less likely in say, the aerospace and automotive clusters, which have about 25,000 jobs outside the city but only 300 in the city itself.

The data do confirm that a cluster understood to be central to the city's and region's economies— biosciences—is in fact, important in both geographies. And some clusters that show specialization outside the city but not currently in St. Louis itself, like transportation and logistics, reflect an under-utilization of city assets and could, with the right strategies, grow significantly in the city. Given this range of possibilities for cluster evolution, it is not the case that a city-focused strategy will necessarily lead to greater divergence between the city and the surrounding areas, but only that an understanding of city growth opportunities must be based on information that provides an accurate view of local conditions and trends.

Based on this context, we identify two functional roles that SLDC (and where relevant, other city EDOs) should play with regard to boosting cluster specializations in general. These can be grouped into general business support functions and regional economic development partnerships. Regarding regional initiatives, for example, by tightening functional collaboration, which in many areas is already reasonably strong, both the city and broader region are more likely to be successful in national and global business attraction and firm retention and growth.

Figure R-1. Overview of specializations for the city and rest of region

Specialization (Traded Clusters)

Rest of MSA \ City of St. Louis	Not Specialized		Specialized
Specialized	Aerospace Vehicles and Defense Automotive Communications Equipment & Services **Distribution and Electronic Commerce** **Insurance Services** Leather and Related Products Lighting and Electrical Equipment	**Metalworking Technology** Nonmetal Mining Plastics **Printing Services** **Production Technology & Heavy Machinery** **Transportation and Logistics** Upstream Metal Manufacturing	**Biopharmaceuticals** **Downstream Chemical Products** Footwear
Not Specialized	Agricultural Inputs & Services All Other Crop & Animal Production Coal Mining **Construction Products & Services** Downstream Metal Products Fishing and Fishing Products Forestry **Information Technology & Analytical Instruments** Jewelry and Precious Metals **Knowledge Creation/Research & Development** Livestock Processing	Medical Devices Metal Mining Music & Sound Recording Oil & Gas Production and Transportation **Paper and Packaging** Recreational & Small Electric Goods Textile Manufacturing Trailers, Motor Homes, and Appliances Video Production & Distribution Vulcanized & Fired Materials Water Transportation Wood Products	Apparel **Education + Training** Environmental Services **Financial Services** **Food Processing and Manufacturing** **Furniture** **Hospitality and Tourism** **Marketing, Design, and Publishing** **Performing Arts** Tobacco **Upstream Chemical Products**

Source: QCEW-UDP; Mass Economics analysis
Note: **Bolded** clusters have at least 500 employees in the City of St. Louis; clusters reflect Porter-defined traded clusters

SUPPORTING ST. LOUIS BUSINESSES

Strategies and Action Items

Strategy 1	Establish a robust Business Retention and Expansion (BRE) Program, which will complement target cluster initiatives

Among all 138 economic development agencies located in the St. Louis region, business attraction and retention is one area in which the city is disproportionately under-represented, so this must be an important function for SLDC. A strong BRE program is potentially more impactful than a business attraction program. Not only does BRE offer similar potential for job creation, it also fosters a climate that is supportive of business growth. It is difficult to recruit a new company if existing businesses are not thriving, especially if they have a negative attitude about the local business climate. In addition to creating a supportive business climate, a robust BRE program must also help mitigate risks and vulnerabilities facing existing employers.

Action Item #: SB-1.1	Establish the BRE program by making a high-level hire tasked solely with business retention
Leader	SLDC
Potential Partners	AllianceSTL, Regional Chamber, SLEDP, World Trade Center, other BRE programs (e.g., Ameren, Spire)
Start Time	Year 1
Duration	0-3 months
Effort to Implement	High
Potential Funding	SLDC
Goal/s	Kick off the BRE program
Tracking Progress	New hire

In collaboration with the city, SLDC needs a high-level hire who is tasked solely with business retention efforts and should create a protocol for prioritizing BRE efforts, taking into account factors such as risk of downsizing or relocating, growth potential, and whether a company is one of the city's target industries. Relationships must be cultivated not only with local business leaders, but also with executive leadership (e.g., CEOs, CFOs, global real estate directors) of St. Louis' major employers whose headquarters may be located elsewhere. Beyond the companies themselves, connections must also be made with relevant professional service providers bringing a different understanding of the company's needs and challenges, such as accounting firms, legal firms, marketing/PR firms, and commercial real estate professionals. The program should coordinate BRE efforts among organizations to fully leverage available resources and relationships and to exchange vital information. Focus should be on the SLDC and city relationships (including the Mayor's office), but should also extend to the local business relationships maintained by the St. Louis Economic Development Partnership (SLEDP), the Hispanic Chamber, and others.

Action Item #: SB-1.2	Coordinate with economic development partners to establish protocol for identifying and visiting target companies
SB-1.2.1	Identify companies at risk of relocating or downsizing (e.g., because of a recent merger/acquisition)
SB-1.2.2	Identify companies with the potential for a major expansion
SB-1.2.3	Create a master document of the major employers (more than 50 employees) within each of the city's and region's target industries and emerging opportunities and their corresponding contacts
SB-1.2.4	Develop detailed knowledge base of targeted companies by mining information from various sources (e.g., key leadership at each target company, relevant professional service providers, including accounting, legal and marketing/PR firms, and commercial real estate professionals
SB-1.2.5	Deploy dedicated staff members to engage target companies and establish relationships once target companies are identified
SB-1.2.6	Cultivate relationships with executive leadership (e.g., CEOs, CFOs, Real Estate Directors, HR Directors) of St. Louis' major employers whose headquarters are located elsewhere
SB-1.2.7	Design (or purchase) a survey instrument that gathers information on key cluster assets, workforce skills and availability, innovation and entrepreneurship supports, commercial real estate needs, municipal services, and growth opportunities and threats, among other key items
SB-1.2.8	In areas of especially high vacancy, conduct special outreach with businesses currently located downtown and any concerns around retention
Leader	SLDC
Potential Partners	AllianceSTL, GlobalSTL, Missouri Partnership, SLEDP
Start Time	Year 2
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	City of St. Louis
Goal/s	Utilize a strong BRE program to improve the city's business climate and grow jobs at target companies, including anchor institutions
Tracking Progress	Number of target companies selected; presence of dedicated staff to undertake corporate outreach

Action Item #: SB-1.3	Implement regular walking survey days along commercial corridors with a brief questionnaire
Leader	SLDC
Potential Partners	Board of Aldermen, Commercial District Coalition, Planning & Urban Design Agency, Trailnet, business associations, other economic development partners
Start Time	Year 1
Duration	Ongoing
Effort to Implement	High
Potential Funding	City, SLDC
Goal/s	Gauge the needs and document concerns of businesses in employment districts and centers across the city; improve business retention; tailor the survey to different types of commercial corridors; cap the length of the survey at ten questions so that it is easy to respond to; issue it regularly; gauge a variety of business quality of life concerns (e.g., pavement condition)
Tracking Progress	Undertaking the walking surveys; compiling responses to questionnaire

Strategy 2 Grow the SLDC toolbox to better manage the needs of the business community

Data and information: SLDC should collaborate with EDOs across the region – SLEDP, AllianceSTL, Chamber, Invest STL – and local city and county governments to create a sophisticated, shared data capacity and system for tracking the local economies, building on the framework established by the St. Louis Regional Data Alliance. This should include a formal, enforceable data-sharing agreement and a consensus on the local, state, and federal data sources, economic cluster definitions, and occupational categories to be tracked.

Real estate development: City and regional economic development strategies often overlook a critical growth factor: specialized real estate assets that meet the needs of specific clusters or firms at different stages of growth. As a city and region, St. Louis is actually a national leader in the development of these types of assets with specialized facilities for plant and life sciences; a globally-recognized innovation district; and recent assembly of the N2W site for the new federal geospatial intelligence center.

Even with regional capabilities and track record of success,[160] further developing capabilities in and focus on specialized real estate assets could accelerate economic growth in the city. We propose two distinct efforts for this. The first, discussed in detail in the next sections, is for SLDC to develop internal cluster expertise to identify real estate gaps in target clusters, identify at a high level the real estate investments and increased staffing with experience needed to meet these gaps, and manage RFP processes to identify local and national developers to create real estate solutions. This marrying of cluster and real estate expertise would create a strong match between SLDC capabilities and the development needs of the city and move SLDC from reactive to proactive development, an outcome supported across the organization.[161]

160 There is a well-stocked regional toolbox, including programs and initiatives at AllianceSTL, Global STL, and SLEDP, including immigrant entrepreneur support, advanced manufacturing, international trade, business retention and support, and cross-jurisdictional expertise that SLDC can leverage.

161 Project interviews and roundtables

The second action area is regional coordination to ensure that as economic clusters evolve, existing and potential new firms can find the real estate options they need to invest and/or grow. Currently, according to local experts, there are a number of real estate challenges that are slowing retention, growth, and attraction efforts in the city, including lack of cheaper space around Cortex for second-stage bioscience and tech firms; too few quality options for small- and mid-sized firms that want to grow in or move to the City of St. Louis; and challenges across the entire region with finding >100-acre sites.[162] Although the city already has a Location One Information Service (LOIS) website,[163] it would be valuable to expand this resource and marry this information with broader economic cluster information. In the first phase, participating organizations will identify real estate needs for key clusters and growth opportunities; in the second phase, funding sources for a real estate/development fund will need to be identified.

162 Project interviews and roundtables

163 *Sites and Buildings Search.* (n.d.). City of St. Louis. Retrieved from https://www.stlouis-mo.gov/government/departments/sldc/sites-and-buildings.cfm

Action Item #: SB-2.1	**Establish a common customer relationship management (CRM) platform for SLDC and its economic development partners to track all leads and prospects, including compliance of companies receiving incentives and business engagement, and use the platform to manage a shared survey tool for companies related to BRE efforts**
Leader	SLDC
Potential Partners	AllianceSTL, GlobalSTL, Missouri Partnership, SLEDP
Start Time	Year 2
Duration	Ongoing
Effort to Implement	Medium
Potential Funding	SLEDP, SLDC
Goal/s	Coordinate city and regional BRE efforts, foster economic development ecosystem actors' relationships with corporates, consolidate corporate outreach efforts
Tracking Progress	Establishment of a CRM platform, number of companies tracked through such a platform, development of a survey
Action Item #: SB-2.2	**Create a market-ready portfolio of relevant buildings and sites in the city that can quickly be shared with companies who indicate their commercial real estate needs during business visits**
Leader	AllianceSTL, Regional Chamber, SLDC
Potential Partners	Cluster experts (e.g., BioSTL, St. Louis Freightway), real estate and finance expertise, interested private parties
Start Time	Year 1
Duration	6 months
Effort to Implement	High
Potential Funding	Local philanthropy – see land assembly strategy
Goal/s	Identification and funding of transformative real estate investments
Tracking Progress	Sites assembled, developed, and occupied

Action Item #: SB-2.3	Hire a retail expert to support commercial corridors and commercial real estate needs
Leader	SLDC
Potential Partners	Real estate experts and brokers, anchor retail tenants
Start Time	Year 1
Duration	6-12 months
Effort to Implement	High
Potential Funding	Local philanthropy
Goal/s	Support the development of commercial corridors and effectively implement retail-related strategies (e.g., retail incubator, Main Streets, etc.)
Tracking Progress	New hire

SUPPORTING REGIONAL PARTNERSHIPS

Strategies and Action Items

Strategy 1	Bolster business attraction efforts by strengthening regional partnerships

Business attraction: Regional attraction efforts should provide would-be investors with the full range of location and real estate options available in the St. Louis metropolitan area. Organizationally, these efforts can be coordinated under regional bodies that cover the full geography of a region, an approach that can help reduce intra-regional competition, discourage incentives for intra-regional moves, and provide a single front door for businesses considering the St. Louis region. At the same time, there can be information and communication costs associated with regional approaches, which often discourage deep expertise about specific areas. As one local stakeholder noted, "I'm worried about whether having [a regional organization] do standard economic development [functions] for the city is good. These are becoming geographically tighter—you don't want business attraction far away."[164]

We propose two action items to address these issues. The first is the creation of an SLDC regional business development support position to manage the creation of materials and help formalize existing coordination and collaboration efforts between SLDC, SLEDP, and the other regional business attraction entities. This approach will complement the cooperative ethos of regional business attraction efforts with rich and timely information from an organization with deeper staffing levels dedicated to economic development in the City of St. Louis. It will be good for the city, which will benefit from a more formalized approach to business attraction, but also regional efforts, which need to better leverage the City of St. Louis, home to many of the region's most valuable 21st century economic assets.[165] Second although not discussed in detail in this section, another important action item related to business attraction is real estate, which appears in the real estate section.

Exports and foreign direct investment: Exports and foreign direct investment (FDI) are important to the St. Louis city and regional economies. A 2016 export plan for the region noted that the metropolitan area exported about $16.1B in goods and services, of which $2.6B was estimated to come from firms located in the City of St. Louis. St. Louis County's exports ($6.9B) were about 2.5 times higher, in part because of high export activity in the automotive and aeronautical clusters ($3.6B), industries with little presence in the city. FDI is also important to local economies. With the $66B acquisition of Monsanto by German conglomerate Bayer in 2018, Missouri had more FDI than any other US state, and the City of St. Louis and St. Louis County recently collaborated on a plan to attract FDI. These efforts certainly matter to the city's and region's growth trajectory: the most recent work on globalization and regional economies estimates that FDI and exports together support about 12% of employment in the St. Louis metropolitan area.

Both the FDI and export plans show the importance of collaboration of regional actors in participating in global markets, and these efforts should remain regional. In addition to supporting these existing efforts, SLDC and other city EDOs can support foreign investment and trade attraction by working with Global STL, AllianceSTL, the Missouri Partnership, the World Trade Center, site selection consultants, and any other cluster-focused initiatives to help identify and engage the assets that can attract global firms to the St. Louis region: strategic partners, product validators, first customers, introductions to researchers, etc. The (proposed) SLDC regional business attraction support staff should support these efforts by working with key regional entities like BioSTL, AllianceSTL, and World Trade Center St. Louis to identify and catalogue the types of assets that can help attract global firms to locate in the St. Louis region. Certainly, a large portion of these firms will locate outside the city, but SLDC and other city EDOs should recognize that even those investments will benefit the city in myriad ways and, more broadly, that collaborating with regional EDOs and supporting regional growth should be a priority of city-focused EDOs.

164 Project interviews and roundtables

165 Project interviews and roundtables

Action Item #: R-1.1	Staff a regional business development support position representing the city
Leader	SLDC
Potential Partners	AllianceSTL, Missouri Partnership, Regional Chamber, SLEDP
Start Time	Year 1
Duration	2-3 months
Effort to Implement	High
Potential Funding	Internal
Goal/s	High-quality hire
Tracking Progress	Pre-staffing: quality of staffing, completion time of recruitment and staffing; post-staffing: regularly scheduled meetings with the regional EDOs, participation in relevant domestic and international business recruitment meetings, regional business attraction outcomes

Action Item #: R-1.2	Coordinate data and capacity across EDOs in the region by using existing data strengths to develop a common economic development data platform
Leader	SLDC
Potential Partners	AllianceSTL, Regional Chamber, Regional Data Alliance, SLEDP
Start Time	Year 2
Duration	Ongoing
Effort to Implement	High
Potential Funding	SLDC and partners; potential for revenue from customized data sales
Goal/s	Use existing data to create initial data sets to be released in 2020; secure funding agreements in 2020
Tracking Progress	Number of collaborating entities; timeliness of data release; utilization of data across region

Action Item #: R-1.3	Identify pipelines, responsibilities, communications systems, and information sharing using the Cooperation Agreement as a baseline
Leader	SLDC
Potential Partners	AllianceSTL, Downtown STL, Missouri Partnership, Regional Chamber, SLEDP
Start Time	Year 1
Duration	3-12 months
Effort to Implement	High
Potential Funding	TBD
Goal/s	Maintain coordination across agencies
Tracking Progress	Number of participating entities, number of items that have been consolidated or streamlined, presence of a coordinated platform

Action Item #: R-1.4	Cooperate with regional partners to inventory and catalogue regional assets that can be leveraged to attract global firms, and create a regional inventory of assets
Leader	SLDC
Potential Partners	AllianceSTL, GlobalSTL, Missouri Partnership, SLEDP, World Trade Center (specifically its FDI Steering Committee and, potentially, its forthcoming “Accelerating the Accelerators” effort)
Start Time	Year 2
Duration	Ongoing
Effort to Implement	High
Potential Funding	SLDC
Goal/s	Showcase the region’s numerous assets that can be used to attract global firms, as well as talent
Tracking Progress	Completed inventory

Action Item #: R-1.5	Develop a policy and procedure for evaluating potential sites submitted by partners within the region in response to Requests for Information (RFI) from site selectors and corporations
Leader	Coalition of Economic Development Partners
Other Potential Partners	AllianceSTL, EDOs and Municipal and County Economic Development Departments throughout the region
Start Time	Year 2
Duration	18+ months
Effort to Implement	Very High
Potential Funding	N/A
Goal/s	Develop a protocol for limiting inter-regional competition that is agreed upon by a super majority of economic development and political leaders/entities; enable the coalition of partners to evaluate each proposal based on the requirements of the RFI and identify a singular site to submit from the region to the issuing firm
Tracking Progress	Open communication between leadership throughout the region
Action Item #: R-1.6	**Develop a regional business attraction marketing campaign**
Leader	AllianceSTL
Potential Partners	SLEDP, SLDC
Start Time	Year 2
Duration	9 months
Effort to Implement	Medium
Potential Funding	Business community
Goal/s	Develop a marketing campaign and messaging strategy targeted towards corporate decision makers and site selectors for companies within desired industry clusters
Tracking Progress	Positive responses to campaign from intended targets

Strategy 2 Develop internal expertise in an existing or emerging regional specialization cluster

On an annual or biannual basis, SLDC should evaluate its internal cluster expertise and identify areas that need strengthening based on city and regional trends. Many of these areas of expertise, as proposed below, should be for clusters that are city-centered. However, SLDC should also develop cluster expertise where it can help grow a regional cluster that could evolve to have a city footprint. We propose that the initial regional cluster for which SLDC should develop expertise is agtech.

Agtech is currently centered outside the city in Creve Coeur, home of Bayer (formerly Monsanto), the Danforth Center (the largest independent plant science institute in the world), and 39 North, a planned 600-acre plant science innovation district.[166] In addition, the U.S. Department of Agriculture (USDA) has two offices in the city. The St. Louis agtech cluster was recently featured in Brookings "Rethinking Cluster Initiatives" project, which highlighted the key roles of BioSTL, the Danforth Center, the Partnership, and other regional entities under the umbrella of the BioSTL Coalition to "collaborate effectively without a single driver or hierarchical structure" and "[set] the strategic vision for the cluster." The St. Louis region's agtech cluster is known globally; as one observer noted, "Agtech is perhaps the only area that doesn't require a specialized deal [to attract external investment]. Just the ecosystem itself is enough: innovation, access to growers, research, talent." [167]

The City of St. Louis currently plays a relatively small role in the larger regional agtech cluster. It is home to Missouri Botanical Gardens, a globally-recognized botanical research site, as well as angel and venture funds that finance agtech, but only a few agtech-related firms.[168] Longer-term, however, five factors suggest that the scale of the potential impact makes it a critical cluster for the St. Louis City economy. The first is the scale of change underway in agriculture, from rapid growth in smart farming technologies to potentially dramatic shifts in farm production out of California due to water concerns into the more water-abundant interior U.S. and with it, an acceleration of specialty crop production in the St. Louis regional foodshed.[169,170] This shift would result in dramatically increased demand for both food processing and manufacturing capacity and also food-related TDL activity. Second, the strength of the geospatial cluster and its likely continued growth in St. Louis positions the city for significant growth in precision agricultural applications.[171] Third, given the city's existing specializations, the agtech/fintech nexus seems relatively undeveloped; local experts note that there has been some organized activity (e.g., a hackathon) and a few agtech/fintech firms, but the full potential may not have been tapped. And if more specialty crop production moves to the agricultural areas around St. Louis, as could happen with significant declines in California production, local interest in agtech/fintech could accelerate.[172,173,174] Fourth, a 2019 i6 grant from the U.S. Economic Development Agency (EDA) will support BioGenerator in creating a proof-of-concept center for agtech companies at Helix Center in Creve Coeur, with support from programming located in Cortex. These direct linkages could help expose promising ventures to the city and provides a recognizable agtech asset with roots in the city.[175] Finally, with the announcement that Sam Fiorello will be the successor to Dennis Lower as the new leader of Cortex, the City of St. Louis gains one of the region's leading agtech champions.

166 Johnson, B., and Ward, C. (n.d.). Bioscience as a Foundation for Transforming St. Louis. *Bridges, Spring 2016.* Retrieved from https://www.stlouisfed.org/publications/bridges/spring-2016/bioscience-as-a-foundation-for-transforming-st-louis

167 Project interviews and roundtables

168 *Missouri: The Global Leader in Agtech*. (n.d.). Missouri Partnership. https://www.missouripartnership.com/wp-content/uploads/2018/01/Agtech.pdf; Project interviews and roundtables

169 A 2014 study found that "only one tenth of one percent of cropland in the 100-mile radius [around St. Louis] is dedicated to non-commodity fruits and vegetables." See: *St. Louis Foodshed Study Evaluates the Evolution of Industrial Food Production.* (2014, November 19). Missouri Coalition for the Environment. https://moenvironment.org/st-louis-foodshed-study-evaluates-the-evolution-of-industrial-food-production/

170 Evanoff, T. (2019, July 17). *Is Memphis the next California for farming? Conservationists want to find out.* The Commercial Appeal. https://www.commercialappeal.com/story/money/2019/07/17/farming-world-wildlife-fund-memphis-mississippi-delta-next-california-for-vegetables/1638160001/

171 Oisebe, P. R. (2012, October 9). Geospatial Technologies in Precision Agriculture. *GIS Lounge*. https://www.gislounge.com/geospatial-technologies-in-precision-agriculture/; TEConomy, 2019; Agriculture. (n.d.). GPS.gov. Retrieved from https://www.gps.gov/applications/agriculture/

172 Clay, J. (2018, January 30). *The Next California*. Brink – The Edge of Risk. https://www.brinknews.com/the-next-california/

173 Project interviews and roundtables.

174 Of course, using technology to solve market entry problems could accelerate the growth in specialty crop production in areas that have traditionally focused on commodity production.

175 Will more closely integrate Creve Coeur and city; project interviews and roundtables; Nicklaus, D. (2019, July 30). Arch Grants and BioGenerator get $750,000 each to help entrepreneurs. *St. Louis Post-Dispatch.* https://www.stltoday.com/business/columns/david-nicklaus/arch-grants-and-biogenerator-get-each-to-help-entrepreneurs/article_df7e976e-f8ed-5dfb-a832-12ddf8f663f1.html

Action Item #: R-2.1	Develop internal SLDC expertise on agtech
Leader	SLDC
Potential Partners	Cluster experts (e.g., BioSTL, Danforth Center, 39N)
Start Time	Year 1
Duration	Ongoing; adjust and refine annually or biannually
Effort to Implement	High
Potential Funding	Local or national philanthropy, EDA Grant
Goal/s	Development of staffer cluster expertise, identification of cluster opportunities in the city
Tracking Progress	Long-term cluster development in the city and region

"St. Louis can beat the world in agtech. Everything is here."

LIST OF FIGURES